Initial Demographic and Economic Changes for Maori in a Post-Disaster Landscape

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1. Executive Summary

The city of Ōtautahi/Christchurch experienced a series of earthquakes that began on September 4th, 2010. The most damaging event occurred on February 22nd, 2011 but significant earthquakes also occurred on June 13th and December 23rd with aftershocks still occurring well into 2012. The resulting disaster is the second deadliest natural disaster in New Zealand's history with 185 deaths. During 2011 the Canterbury earthquakes were one of the costliest disasters worldwide with an expected cost of up to $NZ30 billion.

Hundreds of commercial buildings and thousands of houses have been destroyed or are to be demolished and extensive repairs are needed for infrastructure to over 100,000 homes. As many as 8,900 people simply abandoned their homes and left the city in the first few months after the February event (Newell, 2012), and as many as 50,000 may leave during 2012. In particular, young whānau and single young women comprised a disproportionate number of these migrants, with evidence of a general movement to the North Island.

Te Puni Kōkiri sought a mix of quantitative and qualitative research to examine the social and economic impacts of the Christchurch earthquakes on Māori and their whānau. The result of this work will be a collection of evidence to inform policy to support and assist Māori and their whānau during the recovery/rebuild phases. To that end, this report triangulates available statistical and geographical information with qualitative data gathered over 2010 and 2011 by a series of interviews conducted with Māori who experienced the dramatic events associated with the earthquakes.

A Māori research team at Lincoln University was commissioned to undertake the research as they were already engaged in transdisciplinary research (began in the May 2010), that focused on quickly gathering data from a range of Māori who experienced the disaster, including relevant economic, environmental, social and cultural factors in the response and recovery of Māori to these events.

Participants for the qualitative research were drawn from Māori whānau who both stayed and left the city. Further data was available from ongoing projects and networks that the Lincoln research team was already involved in, including interviews with Māori first responders and managers operating in the CBD on the day of the February event. Some limited data is also available from younger members of affected whānau.

Māori in Ōtautahi/Christchurch City have exhibited their own culturally-attuned collective responses to the disaster. However, it is difficult to ascertain Māori demographic changes due to a lack of robust statistical frameworks but Māori outward migration from the city is estimated to range between 560 and 1,100 people.

The mobility displayed by Māori demonstrates an important but unquantified response by whānau to this disaster, with emigration to Australia presenting an attractive option for young Māori, an entrenched phenomenon that correlates to cyclical downturns and the long-term decline of the New Zealand economy. It is estimated that at least 315 Māori have emigrated from the Canterbury region to Australia post-quake, although the disaster itself may be only one of a series of events that has prompted such a decision.

Māori children made up more than one in four of the net loss of children aged 6 to 15 years enrolled in schools in Greater Christchurch over the year to June 2011. Research literature identifies depression affecting a small but significant number of children one to two years post-

disaster and points to increasing clinical and organisational demands for Māori and other residents of the city.

For those residents in the eastern or coastal suburbs – home to many of the city's Māori population - severe damage to housing, schools, shops, infrastructure, and streets has meant disruption to their lives, children's schooling, employment, and community functioning. Ongoing abandonment of homes by many has meant a growing sense of unease and loss of security, exacerbated by arson, burglaries, increased drinking, a stalled local and national economy, and general confusion about the city's future.

Māori cultural resilience has enabled a considerable network of people, institutions, and resources being available to Māori , most noticeably through marae and their integral roles of housing, as a coordinating hub, and their arguing for the wider affected communities of Christchurch.

Relevant disaster responses need to be discussed within whānau, kōhanga, kura, businesses, communities, and wider neighbourhoods. Comprehensive disaster management plans need to be drafted for all iwi in collaboration with central government, regional, and city or town councils.

Overall, Māori are remarkably philosophical about the effects of the disaster, with many proudly relishing their roles in what is clearly a historic event of great significance to the city and country. Most believe that 'being Māori' has helped cope with the disaster, although for some this draws on a collective history of poverty and marginalisation, features that contribute to the vulnerability of Māori to such events.

While the recovery and rebuild phases offer considerable options for Māori and iwi, with Ngāi Tahu set to play an important stakeholder in infrastructural, residential, and commercial developments, some risk and considerable unknowns are evident. Considerable numbers of Māori may migrate into the Canterbury region for employment in the rebuild, and trades training strategies have already been established.

With many iwi now increasingly investing in property, the risks from significant earthquakes are now more transparent, not least to insurers and the reinsurance sector. Iwi authorities need to be appraised of insurance issues and ensure sufficient coverage exists and investments and developments are undertaken with a clear understanding of the risks from natural hazards and exposure to future disasters.

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1. Background

The city of Ōtautahi/Christchurch experienced a series of earthquakes beginning on September 4th, 2010, with a magnitude (M) 7.1 event that resulted in no deaths but saw significant damage to many buildings (Stevenson et al., 2011). It was a smaller (M6.3) but shallower and therefore more severe earthquake on February 22nd, 2011, that was the most damaging, killing 185 people and causing widespread destruction in the CBD as well as significant damage to thousands of residential properties in some areas (Canterbury Earthquakes Royal Commission, 2011; Christchurch City Council, 2012; Tasiopoulou, Smyrou, Bal, Gazetas, & Vintzileou, 2011). Another M6.3 quake on June 13th led to just one related death but wrought further structural damage and provoked considerable fear and distress. Between the major quakes were more than 9,000 aftershocks (over 30 were stronger than M5.0) comprising a unique 'seismic event' that has serious repercussions for current and future New Zealand economic and societal policies.

The disaster is the second deadliest natural disaster in New Zealand's history but is also internationally pertinent, with over half the deaths being foreign nationals from more than 12 countries (New Zealand Police, 2012), many of these were Asian English-language students studying in the CTV building which collapsed and caught fire. Within the global insurance sector, the New Zealand quakes were the third most costly of 2011, with total costs of up to $NZ30 billion of which approximately $NZ20 billion are insured (Munich Re, 2012).

As settlers of a geologically active country, both Māori and Pākehā were regularly reminded of earthquake and volcanic risk (Goff & McFadgen, 2003). These and other natural hazards such as flooding (Hudson & Hughes, 2007) and cyclones (notably Cyclone Bola in 1998; Te Puni Kokiri, 1992) have revealed important roles for Māori institutions. While these and other histories form an important back drop to this research, they are just a starting point for a modern Māori perspective of a geological event has brought seismic change, not least among affected Māori families, schools, organisations, and businesses. While Māori have historically drawn on traditional institutions such as whānau, marae, hapū, and iwi in their endurance of past crises, the disastrous earthquakes in Canterbury challenge all networks and institutions. This report presents a range of data to describe how the earthquakes have affected Māori whānau.

1.1 Māori in Ōtautahi

One of the early organisational casualties of the Canterbury earthquakes was the 2011 Census of Population and Dwellings scheduled for mid-2011 but cancelled due to the scale of the disaster and the impacts on Statistics NZ Christchurch offices. Statistical data for Māori is less readily available and accessible (Statistics NZ, 2002), compounding the difficulties in describing the impacts on Māori whānau. Consequently, greater emphasis is placed on using secondary and administrative data, although there are many issues around such data (Lambert, 2012a).

While Christchurch City is not generally known for the size of its Māori population, on a national basis it represents 4.6% of the total Māori population[1], just over a third (35.1%) of the Māori population in the South Island, and 70.2% of all Māori in the Canterbury region (Table 1). Furthermore, almost 8,800 Christchurch City residents affiliate to Ngāi Tahu, representing 36.3% of all Māori living in Christchurch City.

[1] Of the 73 territorial authorities (i.e., cities and districts), Christchurch City has the 3rd largest Māori population behind Auckland City (29,850) and Manukau City (47,343). Source: 2006 Census.

Table 1: Total residents and Māori in Christchurch City and neighbouring districts (StatsNZ)[2]

Area	Total			Māori		
	1996	2001	2006	1996	2001	2006
Hurunui District	9,402	9,885	10,476	588	516	594
Waimakariri District	32,349	36,903	42,834	2,145	2,430	2,856
Christchurch City	316,608	324,057	348,435	22,050	22,533	25,725
Selwyn District	24,783	27,312	33,669	1,449	1,572	2,010
Ashburton District	25,176	25,443	27,372	1,158	1,179	1,641

Source: (Statistics New Zealand, 2012b).

It is perhaps more useful to understand where Māori whānau and communities live and operate, supporting the scale of the neighbourhood as an important analytical perspective, most obviously in the destruction of or damage to homes, shops, workplaces, churches, and sports and community infrastructure. Table 2 lists those suburbs with highest percentages of Māori residents in Christchurch City and neighbouring Waimakariri District, especially the Eastern suburbs and several coastal suburbs including Kaiapoi and Lyttleton that were also severely impacted by the earthquakes. In these areas, many homes and streets were damaged with liquefaction[3] recurring several times along with damage to infrastructure and the loss of many community facilities.

Table 2: Suburbs and towns with significant Māori populations that experienced severe damage

Town / Suburb	Total Population	Māori Population	Māori % of Total Population	Per cent of Māori < 20 years	Social Dep. Index (2006)
Aranui	4,671	936	21.3%	51.1%	10
Phillipstown	3,489	546	16.7%	39.9%	10
Linwood North	2,547	405	16.4%	48.5%	9
Bromley	2,976	468	16.3%	49.0%	9
Linwood East	1,890	279	15.3%	50.0%	9
Bexley	4,134	603	15.1%	50.5%	9
Chisnall (Wainoni)	2,859	399	14.6%	43.0%	8
Waltham	1,071	144	14.4%	43.5%	10
Woolston South	2,394	330	14.4%	43.2%	9
Woolston West	3,339	426	13.2%	46.9%	9
Avonside	3,240	387	12.2%	43.8%	9
Linwood	4,587	492	11.7%	35.4%	10
Kaiapoi South	2,199	237	11.2%	44.3%	7
Kaiapoi North	4,143	447	11.0%	49.7%	6
Richmond North	2,937	297	10.4%	53.5%	5
Shirley West	3,639	357	10.3%	47.9%	8
North Beach	4,680	456	10.1%	46.1%	7
Richmond South	2,469	237	10.0%	36.7%	9
Lyttleton	3,072	279	9.2%	36.3%	4
Avondale	4,296	333	7.8%	45.5%	5

Source: Statistics New Zealand (2012d) and Ministry of Health (2012d).

[2] Statistics NZ cautions the interpretation of ethnic data as people can and do identify with different ethnic groups over time. Methodology, questionnaire design, classifications and coding practices have also changed over time, meaning some data is not consistent between 1996, 2001 and 2006.

[3] Liquefaction is the loss of strength, stiffness and stability of soil through the shaking and rapid loading that occurs during an earthquake. This means during an earthquake these soils will behave more like a liquid than a solid which can result in considerable damage to land and structures.

Those neighbourhoods with significant Māori populations are generally younger and poorer compared to the rest of the population. For example, the median age in Christchurch City was 36.4 years and the median income was $23,400. In comparison, the median age for Māori was 22.5 years and the median income was $22,000.

The paucity of robust demographic data on Māori encourages the use of neighbourhood data as important spatial proxies for Māori communities, with increasingly detailed technical and ancillary data available on how the earthquakes have impacted on various territorial units.[4]

2. The Research

A broad approach to examining any disaster is needed to account for how people have been affected, and how and why they respond as they do. This report draws on both qualitative data (narrating the personal, professional, and institutional experiences of key actors in responding to the earthquakes) and quantitative data (describing the impacts, movements and assistance relevant to affected Māori communities).

2.1 Qualitative Approach and Methods

In the aftermath of the February earthquake, TPK sought a mix of quantitative and qualitative research to examine the social and economic impacts on Māori and their whānau. The result of this work will be a collection of evidence to inform policy to support and assist Māori and their whānau during the recovery/rebuild phases.

The wider motivation for this and other earthquake-related research emanating from Lincoln University has been to identify pathways to resilience through urban disaster. Qualitative data for this report was gathered through semi-structured interviews with participants identified through word-of-mouth and personal and professional networks. They included Māori and their whānau who have remained in Ōtautahi, and those who have left (including moving to Australia). Participants were required to have experienced both the September and February events (some individuals in whānau had missed the September earthquake). Emails allowed follow up contact and some information was also drawn from the internet, and a limited number of tamariki and rangatahi gave insights. Key themes were identified through NVivo software enabling the researchers to drill down when important concepts became apparent.

Semi-structured interviews allowed participants to speak on those issues important to them and their whānau with only broad guidance from the researchers. Interview questions had been trialled in an earlier project (Lambert, Mark-Shadbolt, Ataria, & Black, 2011), with questions refined and expanded for TPK purposes.

Prior to interviews, the research project was explained verbally, with printed material made available and left with participants. Written permission was gained and permission asked to record interviews. By recording interviews, researchers were able to focus on both the narrative and emotions of participants, although clarity of some recordings was compromised because of certain locations. The participants' right to withdraw consent was also made clear as was their right to access subsequent transcripts. Anonymity was offered (several participants were comfortable with their first names being associated with their comments) and confidentiality assured, including if data was made available to other parties such as TPK.

[4] Many media and organisations, notably the local newspaper, The Press, have contributed to understanding and researching the disaster through large and still growing archives, many of which are available online. A list is presented in the references.

Koha was given (comprising grocery or petrol vouchers). In most instances, kai was provided during the interview.

Communication with participants has continued through emails, telephone calls, and other digital technologies (including social media). Updates on the various research projects the researchers are engaged on are posted on Lincoln University webpages.

2.2 Research Objectives

The objectives of the research were to identify:

- how have the earthquakes impacted on whānau (in the short, medium and long terms);
- what assistance has whānau sought and/or received;
- assistance will whānau require in the future;
- the motivation for staying for those whānau who still reside in the region;
- the reasons for leaving, for those whānau who have left the region, and any intention of returning;
- levels of displacement and relocation of Māori within the region, and to other regions.

2.3 Ethical considerations and outcome of the ethical process

All research went through a rigorous ethical review process at the proposal stage, with several interactions between researchers the Human Ethics Committee (HEC) at Lincoln University as the research progressed and expanded, with the original approval (HEC 2011-15) being reassessed for the necessary Third Party agreement with TPK (HEC 2011-15R). As the initial research involved the professional and personal networks of the Lincoln University research team, allowing the TPK contracted research to build on this early momentum, ethical and professional obligations ran parallel to personal and Kaūpapa Māori practices which enabled participants to be proactive and empowered through their engagement with the research processes. Participants have remained engaged and supportive of the research, being kept informed of progress and preliminary results.

Clearly any project dealing with people post-disaster must be sensitive to issues of trauma and distress for participants: we did not approach anyone known to have been 'traumatised', and although tears were shed during several interviews, participants often commented on a sense of relief and empowerment in talking about their experiences.

2.4 Summary of participants

Of the final 24 participants, ten were male and 14 female. Of these, seven had moved because of the earthquakes (two within the city itself). Participants ranged in age from 23 to 63, with a median age of 41. 18 interviews were conducted with individuals; the remainder were undertaken with whānau present. Participants' homes were the main location for interviews but work places (including marae), the homes of other whānau members, researcher offices, and cafés were also used, depending on circumstances and participant preferences. Four interviews were undertaken in Brisbane where two of the research team were attending the Australian & New Zealand Disaster and Emergency Management Conference.

2.5 Data and analysis limitations

While larger sample sizes are often preferred – and rightly so for most statistical approaches – sensitive and personal data of the type sought for this report is taken from a relatively small sample, reflecting the difficulties and sensitivities associated with accessing Maori affected by the earthquakes. While NVivo formalised aspects of the analysis, insights from two related projects (Lambert et al., 2011; Lambert & Shadbolt, 2012) and the incorporation of extensive technical information has significantly aided the analysis.

The timing of interviews – the end of 2011 through to mid-2012 – has meant the frustration of dealing with insurance (noted by some participants but in many cases unresolved even after 15 months), ongoing challenges of living in damaged neighbourhoods, continued economic stresses, and issues of anxiety and depression (again recorded in some interviews) has been missed. Indeed, it is possible to interpret many of our participants' experiences as largely positive: having survived a major disaster, many rightly have a sense of pride and community engagement.

Limitations to the availability and robustness of statistical information pertaining to Māori are well-known and discussed where relevant.

2.6 Quantitative Research

A raft of quantitative data is available through various agencies including the Earthquake Commission (EQC), the Canterbury Earthquake Recovery Authority (CERA), the Christchurch Earthquake Clearing House, Environment Canterbury (ECan), and the local newspaper, *The Press*. Many organisations published information in regular newsletters and via their websites in response to the earthquakes. Data takes the form of maps, statistics, and technical information, although rarely is ethnicity a focus or variable considered in their data collection, presentation, or subsequent analyses. What information is available, however, does allow analyses of those areas and neighbourhoods that hold significant Māori populations.

3. Hazards and Disasters Research

The terms 'hazards' and disasters' are often used interchangeably but describe two very different perspectives within what has been termed modern 'risk society' (Beck, 2006). A natural hazard will not always result in a natural disaster, for example a strong earthquake in an uninhabited area may not disrupt the functioning of a community or a society: disasters occur when hazards meet social vulnerability.

Risk, vulnerability, and resilience are terms that have an 'intuitive resonance' (Jon Barnett, Lambert, & Fry, 2008) but are often used imprecisely, not least because their effects are not equally distributed through society with variations in the distribution of damage and capacities to respond according to class, age, gender, ethnicity, and location (Adger, 2003; J. Barnett, 2000; Blaikie, 1985; Cutter, 2010; Ellemor, 2005; Sen, 2000; Wisner, 1998). The origins and early development of hazards and disaster research reveal a bias towards the natural over the social sciences. Research in the 1970s was fragmented between geologists, hydrologists and engineers seeking mitigation through predicting natural events and improvements to physical engineering to resist what were considered exceptional events (Smith, 2000).

Two broad approaches can be identified. On the one hand there are systematic investigations of individual hazards following the geophysical or technological triggering of the event: Three

Mile Island (in 1979), Hurricane Katrina (2005), the Kobe earthquake (1995). On the other hand disasters can be conceptualised as being generated from within social systems and therefore exhibit variable and multifaceted risks and resiliencies across communities according to gender, age, location, ethnicity, beliefs, wealth and so on (Cutter, 1996; Hewitt, 1997; Smith, 2000).

Asserting the resilience of indigenous communities, as opposed to their vulnerability, to hazards and disasters is a relatively new and small field *vis-à-vis* the output of geophysical sciences. This report highlights how Māori culture and institutions contributed to responding to and recovering from what is a massive disaster for the city and the rest of the country.

4. Resilience

A common term used throughout the response and on into the recovery period of the disaster (especially in the media and by local and national politicians) has been 'resilience'. Resilience usually refers to the ability of a system – in this case a social system - to absorb external shocks before having to alter its own structure in some way. It can also refer to the speed of recovery of a system following disturbance (Adger, 2000; Ulanowicz, 2000). Three key disciplines contributing to understanding resilience are psychology, ecology and the social sciences.

Psychology was perhaps the first discipline to study resilience, with studies dating back to the 1940s (de Bruijne, Boin, & van Eeten, 2010). Initial studies looked at specific individual competences to try and explain how individuals, especially children, managed to overcome seemingly impossible odds in surviving and even flourishing. This approach saw resilience interpreted as a personality trait. A second focus was to examine external factors such as the family and broader social contexts, interpreting resilience as a process. Critics of both approaches note the imprecise use of the term, arguing that resilience must be a 'multi-dimensional construct' and while individuals may be able to cope with some adversity, this does not necessarily translate into resilience families, for communities, or society (de Bruijne et al., 2010). Further, being resilient to some experiences does not mean an individual or collective is resilient to others (i.e. no individual or collective can be completely resilient).

Ecology has incorporated concepts of resilience since the early 1970s as researchers sought to better understand and articulate sustainable development (Holling, 1973). Resilience in this context refers to the amount of change an ecosystem can undergo while retaining the same functions and structure. Following the acceptance of significant interconnections between society and ecosystems, researchers began to refer to socio-ecological resilience and the ability of these socio-ecosystems to build and increase the capacity for learning and adaptation towards greater resilience (Berkes, Colding, & Folke, 2003). This area has accepted a key role for indigenous peoples with their long association with traditional territories and ostensibly sustainable lifestyles, cultural values and customary practices (Trosper, 2002; J. Turner, Davidson-Hunt, & O'Flaherty, 2003).

Several disciplines within the social sciences have integrated resilience into their areas of interest including organisational and management sciences, safety sciences, and disaster and crisis management (Beckett, Wilkinson, & Potangaroa, 2010; Comfort, Boin, & Demchak, 2010). Of interest to this report is research into cultural resilience (Lambert, 2008; Nightingale, 2003; Tipa & Teirney, 2003; Trosper, 2002), often in tandem with ecological contexts of sustainability noted above (Berkes et al., 2003; J. Turner et al., 2003). An underlying focus is the degree to which Māori cultural factors have influenced whānau responses to the earthquake. Previous

studies have described how traditional practices such as manaakitanga, whānaungatanga and kaitiakitanga are evident in how Māori negotiate contemporary challenges (see, e.g., Durie, 1998, 2005; Fitzherbert & Lewis, 2010; Pehi, Kanawa, Lambert, & Allen, 2009).

5. Impacts

The September 2010 event initiated a disaster response and showed that considerable expertise and resourcing was already present within Christchurch or mobilised within relevant organisations (most importantly, the Ministry for Civil Defence and Emergency Management, MCDEM). One study examining the psychological effects on residents of the September event (Kemp, Helton, Richardson, Blampied, & Grimshaw, 2011) found self-reported sleeplessness, cognitive dysfunction, and heightened stress, depression and anxiety in people who had experienced the earthquake and aftershocks, with impacts much stronger for women than men. Furthermore, many people also reported positive experiences, while this report suggests Māori experienced both positive and negative effects following the major earthquakes and subsequent aftershocks.

Data for this section has been analysed according to short-term, medium-term, and possible long-term effects on Māori integrating available regional, community, and neighbourhood data. The research was completed over the 15 months following the February event. Therefore this report primarily deals with the initial response period and the early stages of what is clearly going to be recovery of many years, possibly over more than a decade with some commentators saying 20 to 30 years with important issues still emerging from the complexities of the recovery (see, e.g., Gluckman, 2012).

5.1 Short term impacts

The dramatic day of February 22nd, 2011, challenged the courage and skills of many individuals. Some of our interview subjects found themselves in life and death situations and observed death close up.[5] Some, including first responders, did not know of their children's' safety for what was an extremely harrowing length of time; five hours in the case of a police officer in the CBD, 11 hours for a mother to hear from her adult son (the baby of the whānau). Primary concerns were for the safety of children and then wider whānau.

> *I wrapped her up and said a little prayer to myself. 'If this is it, please protect my girl.'*

> *I just stood there waiting for the floor to fall through so I could catch [our girl].*

> *I rung my Mum and said have you heard from [my oldest] and she said no. I just know she was walking into town. So then I began to panic… had no idea where she was. You know, with the phone system being*

[5] An initial project interviewed a small sample of Māori emergency workers and managers present in the CBD during the earthquake (Lambert & Marks-Shadbolt, in press).

down it was like gosh, and I'm trying to get hold of everybody and just decided that I was going to drive in to her place in Woolston. That was a nightmare. From there it took me, from Barrington my sister lives by Barrington shops, driving from there to Woolston, took me two and a half hours…

Many were required to show great bravery. One Ngāi Tahu Urban Search and Rescue (USAR) member was required to amputate the legs of a trapped man inside a collapsed building. Others within the CBD area took part in rescues and triage operations. The fate of colleagues and neighbours was often of immediate salience as the quake struck at 12:51 p.m. on a workday.

When I evacuated the office, my work colleague who was pregnant needed help... As I was walking past Joe's Garage, I could hear screaming in there. I helped this one lady out, I ended up carrying her. Both her legs were crushed.

Managers had the additional responsibilities for staff under their control.

Me personally? Oh I didn't have time to be affected by the earthquake… on the day we were in the CBD ... I was more worried about my entire team dying in front of my eyes actually.

Whānau quickly 'clustered' together for security, staying 'marae style' in the most suitable housing, often with those whānau who were outside the most damaged areas. Living arrangements were altered for safety, many children playing and even sleeping under tables.

When I looked at it, my house was unsafe, there was glass everywhere … All I wanted to do was create a safe place. Closed the rest of the house off…all that stuff wasn't worth a dime. [The kids] were playing under the table.

By the night of the February event, most had been reunited with immediate family and had learnt of the safety of friends, neighbours, and colleagues. Then began a process of survival and reassurance, not least on the structural integrity of housing;

I went round the house, made sure things weren't falling off, gonna collapse … checked the foundations with a torch. It's all the survival instincts do come out quite strong. Block all that panic out and just focus on those key things for survival.

Many residents mentioned the feeling of community that quickly grew in some of the most damaged areas. Neighbours were talking and helping out, often for the first time, and hosting each other for kai, allowing others to use showers and toilets, helping with repairs and so on. People have noted how much aid, particularly food flowed into damaged areas. Adults found inspiration in how children coped.

> *Our kids inspired me because they just dealt with it so well.*
>
> *My oldest girl surprised me by going out and finding water on the bike, getting water, cooking dinner in our makeshift kitchen out the back, boiling water for dishes. She really stepped up in time of a disaster.*
>
> *The kids were pretty inspiring through it ... we were watching all these other kids fall apart and not sleeping but I just put that down to the close relationships [we've] all got with each other.*

5.2 Short term changes in school rolls

Perhaps the most robust and useful indicator for measuring the effect of the Canterbury earthquakes on population is the change in school enrolments between 2010 and 2011. The indicator provides an estimate of net migration and change in the Christchurch population, including the movement of students from school to home schooling or correspondence school, and school leavers.[6]

For the year to June 2011, the enrolments in Christchurch schools saw an 8.1% reduction for students aged 5 to 9 years and 5.7% for students aged 10 to 14 years (Newell, 2012).[7]

Table 3 shows major differences in estimated net migration gains/losses by age and ethnic group for the year to June 2011. The data suggests that significant numbers of Māori children left Christchurch in the days following February 22 although anecdotally some may have been pulled from schools and kept at home at least in the short term. The estimated percentage net migration loss from Greater Christchurch for Māori children was 3-5 times that of European children.

Table 3: Estimated Greater Christchurch net migration for children (), by age for selected ethnicities, 2010-2011.

Age	Pakeha	Māori	Samoan	All ethnicities
6	- 2.5%	- 11.3%	- 13.9%	- 4.3%
7	- 3.9%	- 12.7%	- 13.1%	- 6.1%
8	- 3.4%	- 10.7%	- 24.1%	- 5.8%
9	- 3.8%	- 10.0%	- 21.1%	- 5.3%
10	- 3.3%	- 10.2%	- 14.2%	- 4.5%
11	- 1.9%	- 6.3%	- 16.4%	- 3.5%
12	- 2.9%	- 9.9%	- 13.5%	- 5.2%
13	- 0.1%	0.9%	- 22.0%	- 0.9%
14	- 1.2%	- 7.9%	- 13.8%	- 2.6%
15	- 2.5%	- 4.5%	- 12.1%	- 2.6%

Source: Newell (2012).

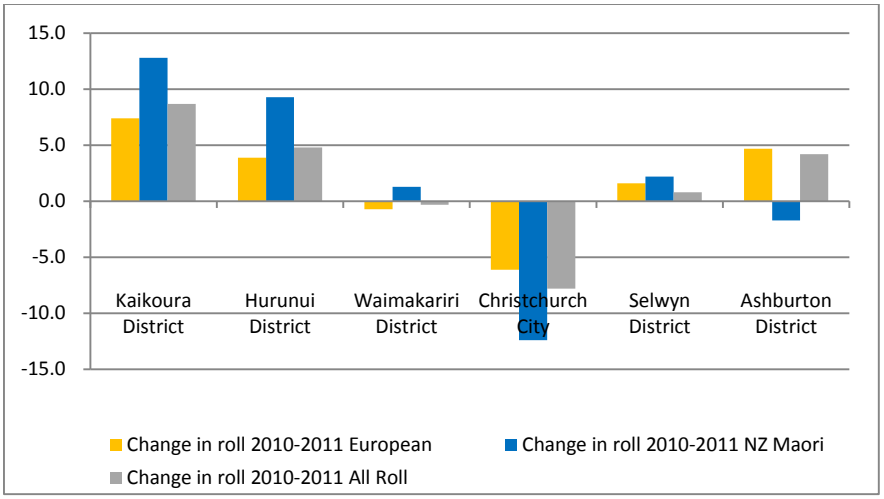
[6] Some caution is needed as rolls could include some children who are not long term usual residents. While this is assumed to be a small effect, it needs to be remembered as a possible source of noise in working with school roll trends. Another source of noise is any change in the proportion home or correspondence schooled. This could well be an issue in Christchurch for the 2011 year, but hasn't been investigated in this estimate of the net population movement implications of the 2011 July school rolls.

[7] This is close to Statistics NZ net migration rate assumptions for the year to June 2011 of 9.6% for the 5 to 9 year cohort and 5.8% and for the 10-14 year age cohort.

The general movement of Māori children is northwards, with Ashburton district – an area not especially affected by the disaster – also showing a decline in Māori enrolments.

Figure 1 emphasises the northward drift of Māori.

Figure 1: Per cent change in the number enrolled aged 5 to 10 years by ward 2010-2011, and by ethnicity



Source: Newell (2012).

Broader rates of net change for 5 to 10 year olds by local authority and ward are presented in Table 4. Between 2010 and 2011 there was a net loss of 439 (12.4%) Māori enrolments from Christchurch City. The largest decrease from Christchurch City was in the Burwood-Pegasus ward which saw a net loss of 168 Māori enrolments (21.5% decrease), and a 9.6% drop in the European roll for 5-10 year olds. However, these students do not appear to have moved to neighbouring districts or wards which suggests that the departure of younger Māori aged children was mostly to schools outside the Greater Christchurch area, or other arrangements were made (e.g. home-schooling or correspondence).

Table 4: Change in Māori, European and Total school enrolments for 5-10 year olds in the greater Christchurch area, 2010-2011

	European		NZ Maori		All Roll		Change in roll 2010-2011			% Change in Roll 2010-2011		
TLA and Ward	2010	2011	2010	2011	2010	2011	European	NZ Maori	All Roll	European	NZ Maori	All Roll
Kaikoura District	**149**	**160**	**86**	**97**	**241**	**262**	**11**	11	21	7.4	12.8	8.7
Area Outside Ward	149	160	86	97	241	262	**11**	11	21	7.4	12.8	8.7
Hurunui District	**739**	**768**	**97**	**106**	**858**	**899**	**29**	9	41	3.9	9.3	4.8
Hurunui Ward	211	213	27	19	240	235	**2**	-8	-5	0.9	-29.6	-2.1
Hanmer Springs Ward	46	52	12	13	62	70	**6**	1	8	13.0	8.3	12.9
Amuri Ward	127	145	18	24	153	182	**18**	6	29	14.2	33.3	19.0
Amberley Ward	273	278	28	34	308	315	**5**	6	7	1.8	21.4	2.3
Cheviot Ward	82	80	12	16	95	97	**-2**	4	2	-2.4	33.3	2.1
Waimakariri District	**3355**	**3332**	**456**	**462**	**3944**	**3931**	**-23**	6	-13	-0.7	1.3	-0.3
Oxford-Eyre Ward	881	926	64	61	966	1007	**45**	-3	41	5.1	-4.7	4.2
Woodend-Ashley Ward	656	668	128	148	814	853	**12**	20	39	1.8	15.6	4.8
Rangiora Ward	993	977	117	116	1159	1139	**-16**	-1	-20	-1.6	-0.9	-1.7
Kaiapoi Ward	825	761	147	137	1005	932	**-64**	-10	-73	-7.8	-6.8	-7.3
Christchurch City	**18601**	**17461**	**3528**	**3089**	**26298**	**24246**	**-1,140**	-439	-2,052	-6.1	-12.4	-7.8
Shirley-Papanui Ward	2828	2707	527	471	3861	3649	**-121**	-56	-212	-4.3	-10.6	-5.5
Fendalton-Waimairi Ward	4186	4006	462	408	5949	5562	**-180**	-54	-387	-4.3	-11.7	-6.5
Burwood-Pegasus Ward	3258	2945	780	612	4544	3944	**-313**	-168	-600	-9.6	-21.5	-13.2
Riccarton-Wigram Ward	2170	2127	430	431	3265	3213	**-43**	1	-52	-2.0	0.2	-1.6
Hagley-Ferrymead Ward	2195	1811	585	489	3378	2777	**-384**	-96	-601	-17.5	-16.4	-17.8
Spreydon-Heathcote Ward	3557	3465	668	611	4794	4603	**-92**	-57	-191	-2.6	-8.5	-4.0
Banks Peninsula Ward	407	400	76	67	507	498	**-7**	-9	-9	-1.7	-11.8	-1.8
Selwyn District	**2840**	**2885**	**279**	**285**	**3300**	**3327**	**45**	6	27	1.6	2.2	0.8
Malvern Ward	588	596	59	56	659	669	**8**	-3	10	1.4	-5.1	1.5
Selwyn Central Ward	872	860	102	113	1037	1028	**-12**	11	-9	-1.4	10.8	-0.9
Ellesmere Ward	488	495	56	56	572	571	**7**	0	-1	1.4	0.0	-0.2
Springs Ward	892	934	62	60	1032	1059	**42**	-2	27	4.7	-3.2	2.6
Ashburton District	**1857**	**1944**	**295**	**290**	**2380**	**2481**	**87**	-5	101	4.7	-1.7	4.2
Methven-Hinds Ward	651	670	62	59	757	784	**19**	-3	27	2.9	-4.8	3.6
Rakaia Ward	249	265	35	35	315	340	**16**	0	25	6.4	0.0	7.9
6303	957	1009	198	196	1308	1357	**52**	-2	49	5.4	-1.0	3.7
Grand Total	**27541**	**26550**	**4741**	**4329**	**37021**	**35146**	**-991**	**-412**	**-1,875**	**-3.6**	**-8.7**	**-5.1**

Source: Newell (2012).

6. Medium term impacts

A variously coordinated response from Māori organisations such as the Māori Wardens, and North Island iwi took place very quickly, with several interviewees noting their welcome presence. Māori wardens were amongst the first to respond being dispatched from Ngā Hau e Whā marae to undertake a rapid community needs assessment to assess public health and other needs (Anderson, 2012). Te Puāwaitanga/Māori Women's Welfare League became a key agency for other Māori organisations in their logistical support from the Canterbury District Health Board.

In the badly hit Eastern suburbs, wardens were door knocking, checking on residents' wellbeing, giving emotional support, providing information, delivering food parcels and water. Up to fifty wardens were deployed at any one time, local staff being joined by wardens from the South Island – Ōtepoti, Te Tau Ihu, Te Rau Aroha (Bluff) and Hokitika sub-associations, who were joined by colleagues from Tāmaki Makaurau, Waikato, Hauraki, Waiariki and Whanganui (Dixon, 2011; Maori Wardens Newsletter, 2011). The Māori wardens were generally self-

sufficient, sometimes using their own whānau networks for accommodation, an important tactic given the severe pressure many locals were under.

> *I spoke of the free sausage sizzle on the corner where people were dropping off food, clothing et cetera. There were also newsletters distributed from this point of where you could get water, whereabouts the mobile showers were set up, where you could access WINZ, Housing NZ, EQC, insurance companies, where you could access cash machines, what supermarkets were operating which petrol stations were open where you could fill your gas bottles, which bus routes were running. This was a good way to keep people in the loop especially for those who had no power or radio to listen to.*

By the time many interviews were conducted, participants had adjusted to what was soon called the 'new normal', and were following different lifestyles and patterns of behaviour. The 'new normal' saw some avoiding tall buildings, especially shopping malls, while rearranging homes to enable quick evacuation or extended periods of absence.

> *I don't go out much anymore, I'm more 'stay at home'. I don't like going to malls, I'm not keen on big crowds now, especially inside...*
>
> *I still hate parking in car parking buildings…I'm constantly looking around* (couple who had moved to Australia)
>
> *I avoided shopping malls big time, for a long time. Even with the teenager, not leaving him in the car, saying, 'Nah, you're not staying here!'*

Furniture and knick-knacks were fixed to prevent breakage in aftershocks. Some people had not replaced photos and pictures on walls, and kept precious things boxed up and safe.

> *We've changed a whole lot of things around the house, some earthquake proof stuff for instance, and some pictures on the wall, we've taken them down now, some mirrors that were in the spare room.*

The physical and psychological demands on people were, and in many instances remain, significant, with ongoing aftershocks adding to their distress. Of those who had experienced the February 22nd earthquake in the CBD, many acknowledged they would need counselling but most had postponed this[8].

Anxiety was experienced by many people over the safety of their homes, neighbourhoods, workplaces, and for those parents who had to get back to work or perhaps travelled for their jobs. An important technological aspect to the response for many whānau was the use of social media such as Facebook to communicate their situation to friends and whānau around the

[8] Emergency workers have counselling as a part of their employment.

world. Some parents acceded to their children's desire for mobile phones, with even young children now having their own phones, and teenagers certainly more empowered to own and operate them.

Some people have spoken of the difficulties experienced in hosting visiting Māori whānau and colleagues, with some hosts having damaged homes and severely disrupted lives yet still feeling obliged to *manaaki manuhiri*. Too rigid an adherence to *tikanga* was noted:

> *...practicality practicality! I'll give you a very good example of it…the prime minister's office turned up - his Māori representatives - they didn't want a big fuss, they just want to come in, get a lay of the land, what's going on, see if they could help in any way and then move on. They were just briefing the prime minister on it. Oh my god, I've never seen anything like it! They made it quite clear too we don't want to interfere!'*

Most participants were remarkably philosophical about the effects of the disaster, with many proudly relishing their role in what was recognised as an historic event of great significance to the country as a whole. Many commented on the ability of Māori to resort to subsistence survival skills although this is probably somewhat exaggerated for many urban Māori. Others consider Māori historical experiences of poverty and struggle has equipped them for surviving such a disaster.

> *We know what puha looks like!*

Several participants acknowledged they struggled emotionally and psychologically since the February earthquake but identified previous trauma as being the fundamental cause of their anxiety, not the earthquake which was seen to trigger or draw out earlier trauma.

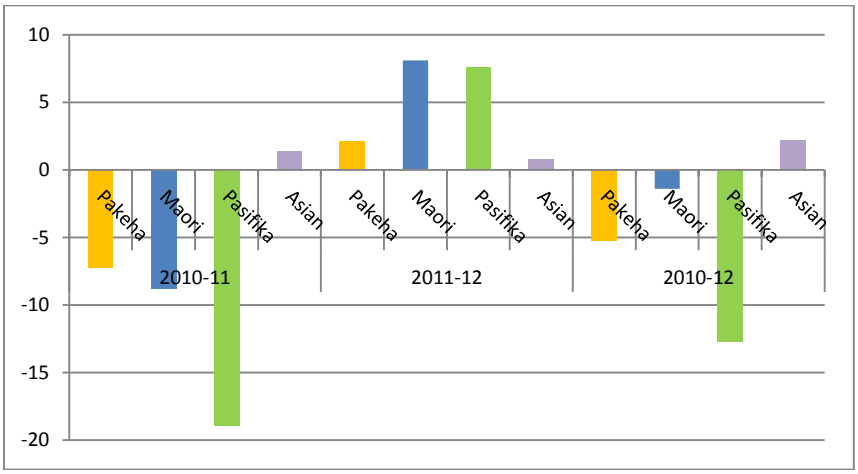
Many people felt the initial feelings of community faded after several months, although others maintained the closer relationships with neighbours forged in the midst of the disaster. Most have experienced a decline in living standards as major repairs to roading and other infrastructure, shopping centres and schools are delayed by insurance issues or a staggered response by the government and Fletchers Construction (the main contractor for repairs and rebuilding damaged houses). Again the Eastern and coastal suburbs have been significantly more impacted in comparison to other residential areas.

Ongoing research (Lambert, 2012b) suggests that well-being for many residents – Maori and Pakeha has declined across economic, environmental, social and cultural contexts. A key feature of those who exhibit resilience, that is the ability to bounce back from the disruption and dislocation of the earthquakes, is personal and household income, confirming the importance of personal economic assets as an insurance against disaster (Vatsa, 2004).

6.1 Medium term changes in school rolls

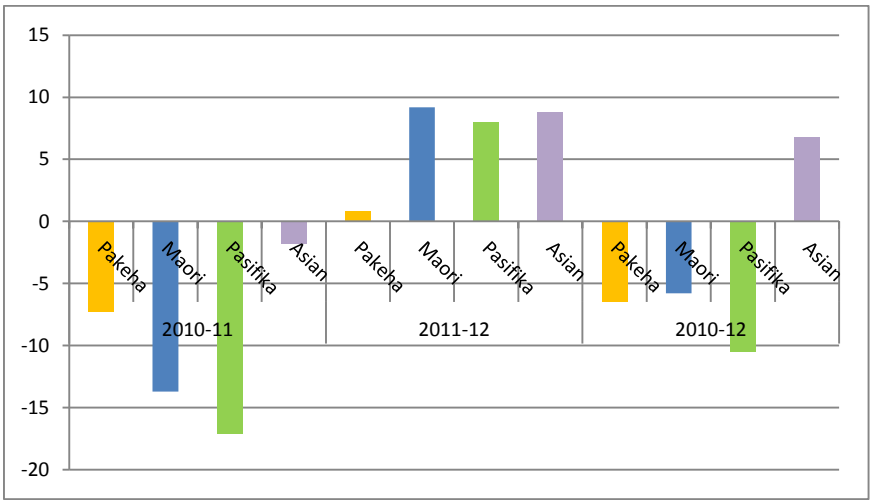
More recent school enrolment data shows something of a 'bounce back' in enrolments between 2011 and 2012 for children in years two to five and years seven to eleven (Figures 2 and 3).

Figure 2: Estimated per cent change in Canterbury school enrolments (years 2-5) by ethnicity, 2010-12



Source: Newell (2012)

Figure 3: Estimated per cent change in Canterbury school enrolments (years 7-11) by ethnicity, 2010-2012



Source: Newell (2012)

7. Long term impacts

Support services across the city were reporting increased demand throughout 2011 and 2012 (e.g., rental accommodation for mental health patients, Stylianou, 2012) and concerns are held for the long term health of those either remaining in the city or having left who may struggle

psychologically and socially (Gluckman, 2012). Māori living within those areas worst affected are reliant on wider local body and government strategies to rebuild damaged infrastructure including important sporting and community facilities; sports coaches are also in short supply for the 2012 sporting season. Recovery of such facilities is now thought to be a strategy that will take many years to complete. Other towns and cities across New Zealand are now faced with ensuring their built environment is safe; a number of community, health, and education facilities have already been closed in nearby Ashburton (Wright, 2012) and other regions. As many important facilities in New Zealand are housed in older buildings, particularly in rural areas, the reviewing of our built landscape will lead to the loss of community and commercial assets.

While the local iwi, Ngāi Tahu have a formal role through the Canterbury Earthquake Recovery Act (CERA), this does not translate into a broad platform of support for Māori as individuals or whānau, and the great majority will be subject to the same stresses and anxieties as non-Māori with regards to their housing, employment, schooling and mental health. Research suggests that long term psychological issues can be successfully addressed by well-resourced professional services.[9] While Post-traumatic Stress Disorder's (PTSDs) are a concern, a longer term issues is more likely to be depression (McDermott, 2004, 2012).

> *Living through a disaster like that is going to have life changing effects. It can't not!*

It is important to note the opportunities the extended rebuild period will offer Māori. Te Tapuae o Rehua (Ngāi Tahu's education arm) is coordinating the training of 200 Māori construction workers in a series of short courses (Tarena, 2012). Given the size of the labour force thought to be needed for the rebuild – in excess of 20,000 – considerable numbers of Māori workers may be attracted to Christchurch.[10]

The destruction of buildings and the loss of access to offices created problems for securing business records and, in the case of Ngāi Tahu, important and possibly irreplaceable whakapapa records were at risk. Te Rūnanga o Ngāi Tahu has now engaged in a process of digitising these records for long term security. In the words of kaiwhakahaere, Mark Solomon, "[W]e have gained an exceptional insight into what can go wrong and what will go wrong when a disaster occurs … this scanning project has arisen out of our desire to learn from the earthquakes and it may be that it sets a precedent for other iwi and indigenous peoples thinking about the archiving and safe-keeping of their own taonga" ('Quake prompts iwi to digitise records', 2012).

8. Economic Context

The September quake seriously impacted on business activity in Christchurch, with the February event compounding these issues and many businesses only able to survive by accessing government support (Stevenson et al., 2011). The recovery phase has seen complex

[9] A new project funded by Ngā Pae o te Māramatanga is framed around Māori mental health provision and will address issues such as long term demand and supply for such services.

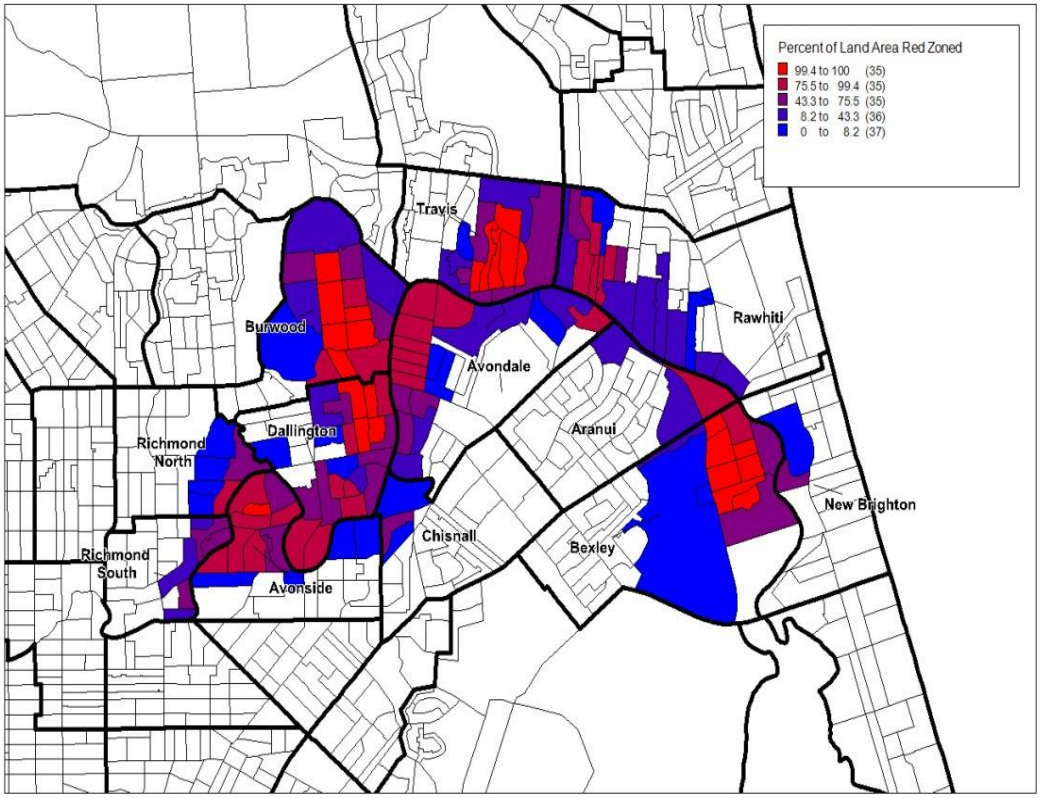
[10] The rebuild component of the recovery has been delayed for many reasons including the unique characteristics of this particular seismic activity (Berryman, 2012; McDonald, 2012a); issues over insurance (Merkin, 2012); and political dysfunction within Christchurch City Council including confusion over roles and authority (Sachdeva, 2012).

and controversial land classification that zones properties and streets as red, orange, or green according to criteria implemented by the Canterbury Earthquake Recovery Authority (CERA). Property zoned red is deemed to be 'so badly damaged by the earthquakes it is unlikely it can be built on again for a prolonged period' (CERA, 2012). The orange-zoned areas require engineers to undertake further investigation.[11] The criteria for defining areas as residential red zone are:

- Significant and extensive area wide land damage;
- Engineering solutions may be uncertain in terms of design, success and possible commencement, given the ongoing seismic activity; and
- Any repair would be disruptive and protracted for landowners.

Large areas with high Māori residency have been red-zoned (Figure 4); a survey by CERA (CERA, 2011) found 7% of households affected by red-zoning are Māori although it is acknowledged that Māori may be underrepresented in this survey.

Figure 4: Percentage of land 'red-zoned' Source: Newell (2012)



All communities in the Eastern and coastal suburbs have lost a considerable number of facilities such as church halls, sports grounds and shops (Christchurch City Council, 2012), significantly compromising the ability of these communities to organise and participate in

[11] Some orange zone areas were damaged by the 5.6 and 6.3 magnitude earthquakes of 13 June, 2011; their assessment has been a long and complicated process.

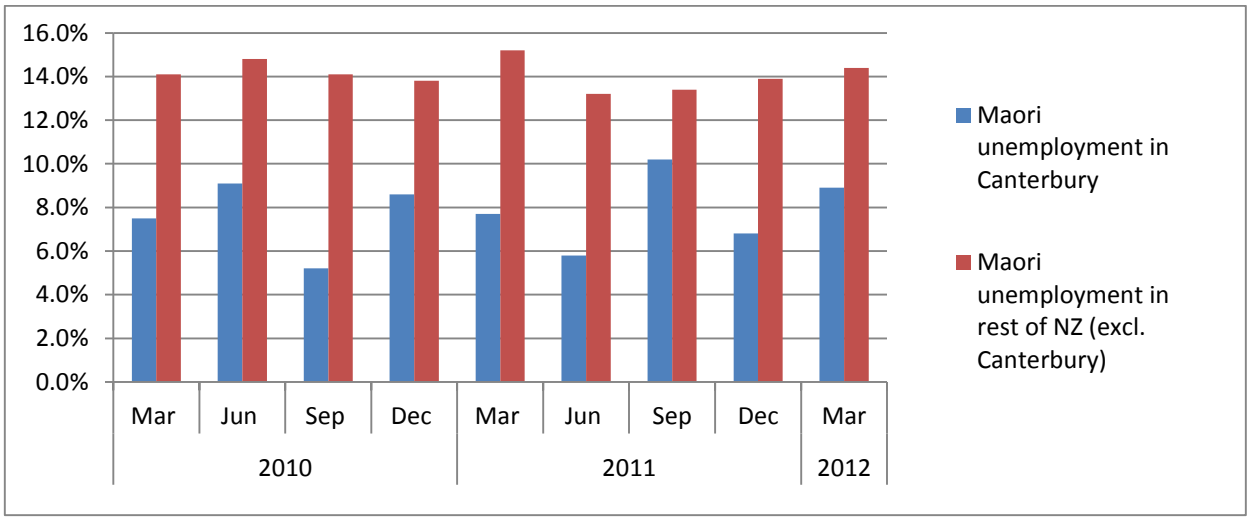
many activities, although a strong sense of community has been retained by Māori throughout 2011 (Anderson, 2012; Kahi & Borrell, 2011).

8.1 Employment

Unemployment figures and hours worked and paid serve as useful proxies for the economic effects of the disaster. Māori unemployment had been poor nationwide for several quarters prior to the earthquakes, and subsequently worsened (despite a slight decline in overall unemployment) from 13.1%to 13.4% for the September 2011 Quarter (Statistics New Zealand, 2012c). As a direct result of the February earthquake, overall employment in Canterbury fell by 28,200 people (8.3%), driven by significant decreases in part-time employment, youth employment, female employment, and people employed in the retail trade and accommodation sectors which are typically sectors with a high participation by Māori (Statistics New Zealand, 2012a).

Although unemployment in Canterbury was lower towards the end of 2011 than it was for 2010 (down by 5,100 people, or 23.7%), and the unemployment rate fell from 6.0% to 5.0% during this period (Statistics New Zealand, 2012c), this appears to be a result of people either leaving Canterbury or dropping out of the labour force. The number of hours worked and paid also fell in the region while rising nationally, with 11% of people not working their usual hours attributing this to the earthquake. In addition, 13% of people who wanted more hours of work said they were unable to work more hours because of the earthquake, and 5% of people stated the earthquake was the reason when asked why they had left their job (Statistics New Zealand, 2012a). Again, with Māori over represented in those sectors were most adversely impacted by the earthquakes, many whānau have suffered significant declines in income.

Figure 5: Canterbury Māori Unemployment



Source: Household Labour Force Survey (Statistics New Zealand, 2012c)

Long term employment in the rebuild of the city is expected to offer employment and training opportunities to Māori, with a peak demand in the residential sector in four years before a shift to the commercial sector in 15 years and a corresponding change to a demand for more specialised employment (Tarena, 2012).

8.2 Property Values

An interesting proxy for economic impacts can be observed by a comparison of property values which in mid-2011 showed declines for those suburbs worst affected.
Figure 6 shows the suburbs of Aranui, Linwood, and Bexley (15-21% of their residents being Māori) suffered a general reduction in property values.

Home ownership and quality of housing for Māori has concerned successive New Zealand government but these concerns have not been fully addressed (Kearns, Smith, & Abbott, 1991; Waldegrave, 2000). For many residents in Christchurch rental costs and the quality of rental accommodation reflects an important measure of the economic impacts of the earthquakes. The picture is clouded by conflicting reports and contradictory comments; for some, rents have risen quite steeply in the city due to the loss of rental properties, exacerbated by some landlords having to move out of damaged homes into their rental assets (McDonald, 2012a) . There are predictions of rental demand further increasing as the recovery workforce grows to an estimated 24,000 plus workers (Canterbury Employment and Skills Board, 2012). The Real Estate Institute of New Zealand (REINZ) has noted an increase in sales volume, driven by first home and red zone buyers, and investors entering the market as rentals move higher (REINZ, 2012). Noting that the Canterbury/Westland region continues to be the strongest property market with a clear uptrend in prices, REINZ also notes strong sales growth in Rangiora and South Canterbury. Selwyn and Waimakariri Districts have seen 13.0% and 13.9% rises in house values in 2012 with an average rise across Christchurch of 5.8% (McDonald, 2012b)

Figure 6: Residential house sales as an indicator of locational preferences (Price, 2011a)

8.3 Māori businesses

A third proxy for the economic effects on Māori is from business iwi and Māori ventures performance. Again it is important to appreciate the scale of damage: of the more than 220 buildings in the city over five storeys in height, at least 110 have been demolished or are in the process of being deconstructed (Bayer, 2012). Te Rūnanga o Ngāi Tahu (TRoNT, the only iwi authority in Christchurch) has proven fairly financially resilient despite suffering considerable damage to their investment properties. (The key data are excerpted from TRoNT's 2011 Annual Report and detailed in Appendix 5).

Following the February quake, numbers arriving and journeying onwards have plummeted as Christchurch is the main gateway for most international and many domestic tourists, and Canterbury tourism lost approximately 1 million guest nights and $230m in revenue (Cairns, 2012). While these represent significant actual and potential losses to Ngāi Tahu, the tribe is well-placed to benefit from future infrastructure and property development opportunities, indeed the iwi authority is named in the Canterbury Earthquake Recovery Act (2011) (New Zealand Government, 2011) is to be a significant stakeholder in the future rebuild of the city and large-scale residential developments are already taking place with iwi involvement.

Māori businesses will have suffered in much the same way as non-Māori: through physical damages to buildings and stock; loss of access to assets and inventory; loss of customers and clients; loss of staff; traumatised staff; and the negative effects to the local and regional economies. The well-known 'Māori village', operated by Tamaki Heritage Experiences, closed its operations in May 2012 due to the dramatic fall off in business, transferring some assets to the original Rotorua-based business and other assets to another cultural showpiece in Christchurch, Kō Tane (operated by Ngāi Tahu) (Cropp, 2012).

The tourism sector will continue to struggle until hotel capacity has recovered. Just over 800 hotel rooms are currently available in the city, down from 3710 before the quakes. Although this is projected to rise to 2174 by mid-2014 as the rebuild of the city takes hold, that amounts to only 60 per cent of pre-quake capacity (Cairns, 2012).

Planning decisions for the city will be framed by the Long Term Recovery Strategy developed by CERA in which Ngāi Tahu are a legislated stakeholder along with Christchurch City Council, Environment Canterbury, Selwyn and Waimakariri District Councils, and other parties as deemed necessary (Tarena, 2012).

9. Summary of Impacts

The scale and severity of the disaster has changed individual Māori, whānau and Māori communities and the earthquakes – four significant quakes with thousands of aftershocks – have had a devastating effect on the city. These impacts have been both direct through the trauma and damage of main shocks, and indirect through the loss of employment, income, family and community asset wealth, business viability, the loss of neighbours, school friends, and workmates.

While school rolls present robust data on Māori, the information available remains disappointingly sparse and present a somewhat confused picture: have Māori left Christchurch *because* of the quakes? Are some now returning after extended stays with whānau in the North Island? We know there are many Māori who now reside in Australia (Hamer, 2008) but

participants spoke of already knowing that Australia offered more opportunities, with the earthquakes providing a final impetus to emigrate.

The economic impacts on some Māori will have been devastating, particularly for those within the red zone that may lose considerable equity through the circumstances of their home ownership. Others are suffering from the disruption of having to move home and the pressures of trying to secure rental accommodation. Employment opportunities have declined for many, particularly woman who were employed in the hospitality, service, and light manufacturing sectors, and even those hoping to work in the reconstruction of Christchurch are limited by the delayed rebuild.

Ngāi Tahu investments are suffering a period of uncertainty but the Rūnanga itself is well-positioned to benefit from the opportunities offered in the rebuild of the city through significant residential and commercial holdings. The disaster does offer a salutary lesson to all iwi with property and business concerns as geological hazards are an ever present risk, and environmental hazards may present even greater risks in the future.

But despite the traumatic events, many of our participants found solace in their whānau and their neighbourhoods which banded together to support each other throughout the worst days following the February event. Further support came from government and non-government agencies, and broader Māori institutions such as marae, iwi, and the Māori wardens.

10. Movements

While the lack of good statistical data constrains accurate identification of Māori demographic changes, reasonably robust inferences can be made from what data is available. Two broad categories are used – internal and external migration – with internal migration further divided into beneficiary transfers in and out of Canterbury and school enrolments.

10.1 Internal Migration

This section focuses on the movements of Māori in the six months following February, with some data on school enrolments to June 2012. One of the most obvious impacts of the February 22nd event was to force thousands of Christchurch residents to flee the city, many in fear of their lives, and many more because of the serious damage to their homes, neighbourhoods and services, and the loss of employment. Air New Zealand, who had offered reduced ticket prices for residents, said it had flown 60,000 people out in the two weeks following the main earthquake. It was soon evident that many of those who left soon returned. Secondary data such as cell-phone use shows regular movements of people out of the city on weekends to nearby locations such as Hanmer (Price, 2011b).

Table 5: Initial movements out of Christchurch, post-February 2012, by area

Area	Outward	Inward	Net Loss
Christchurch Central	11,896	9,751	-2,145
Christchurch East	6,993	6,558	-435
Ilam	10,327	6,984	-3,343
Wigram	6,815	11,958	-5,143
Selwyn	10,492	4,064	-6,428
Port Hills	10,440	7,065	-3,375
Waimakariri	9,620	4,016	-5,244

The Press, August 3, 2011.

Table 6 presents four estimates for the outward movement of Māori. The first three estimates are taken from earlier studies (Newell, 2012; Price, 2011a), the fourth, 'maximum' estimate reflects that the Eastern suburbs have been worst hit and as many Māori are, or were, resident in these suburbs, resulting in a higher estimate of outward migration for Māori.

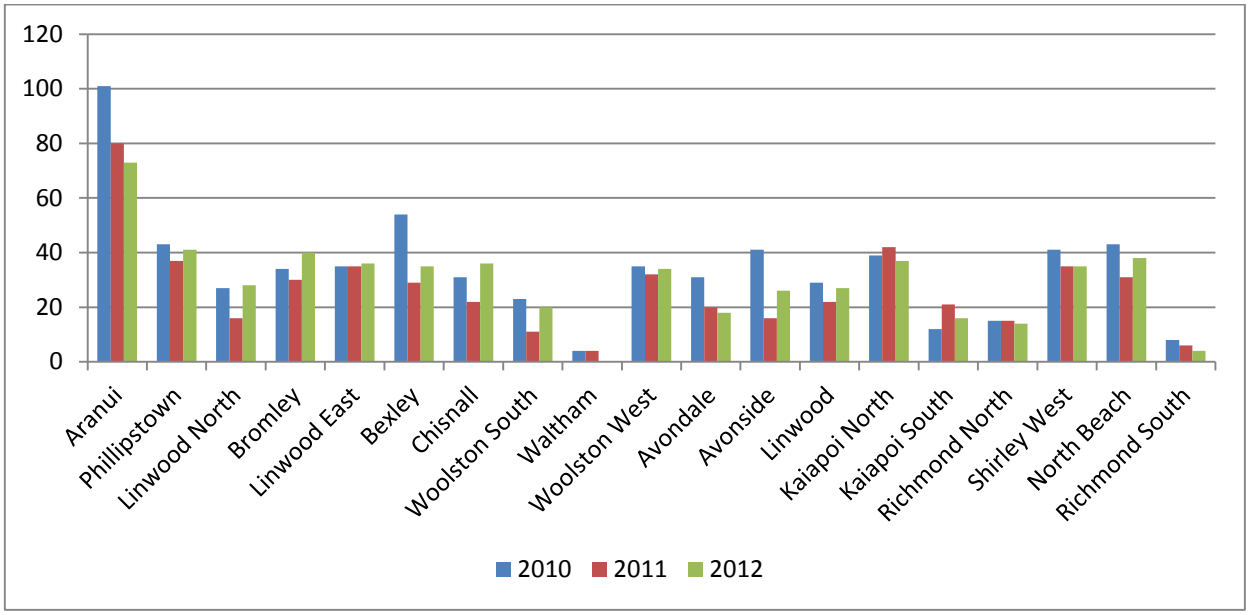
Table 6: Estimates of Māori outward migration in response to earthquakes (internal to NZ)

	Overall % migration	Est. numbers of Māori
Low estimate	2%	560
Mid-range estimate	3%	845
High estimate	3.5%	990
Maximum estimate	4%	1,060

10.2 School Rolls

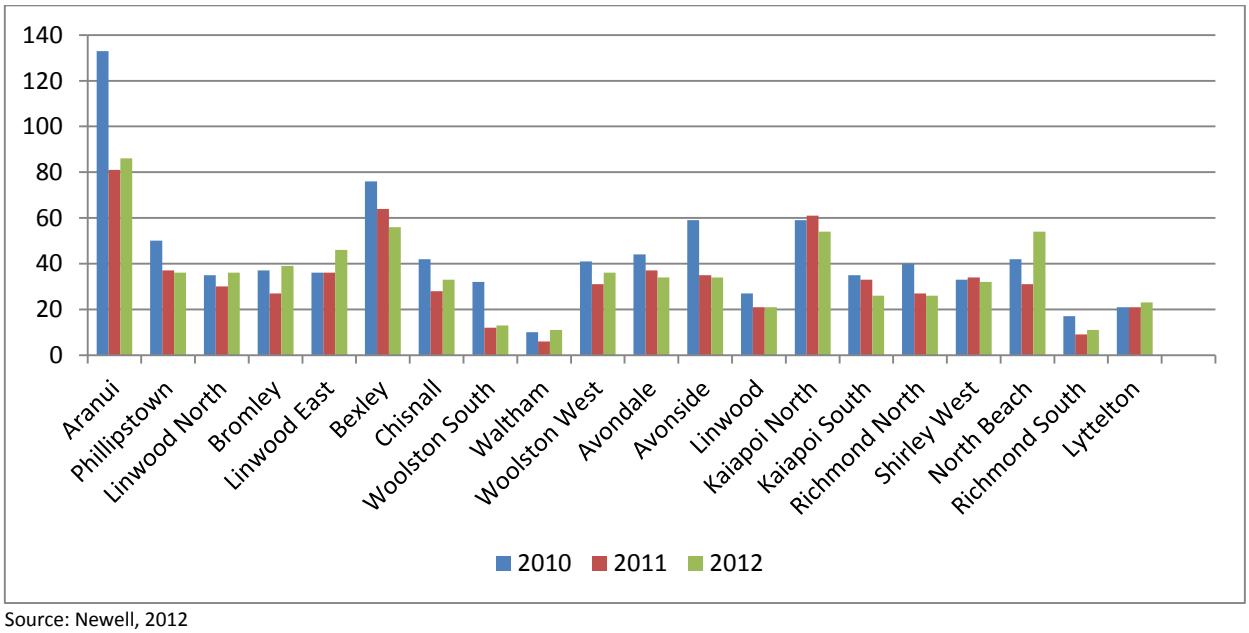
These estimates help frame a broad interpretation of the disaster for Māori in the city but are in themselves somewhat unhelpful. The following data on school rolls provides a robust platform on which to better understand the immediate and medium term impacts.

Figure 7: 2010 to 2012 Māori enrolments, Years 2-5, (2010-12)



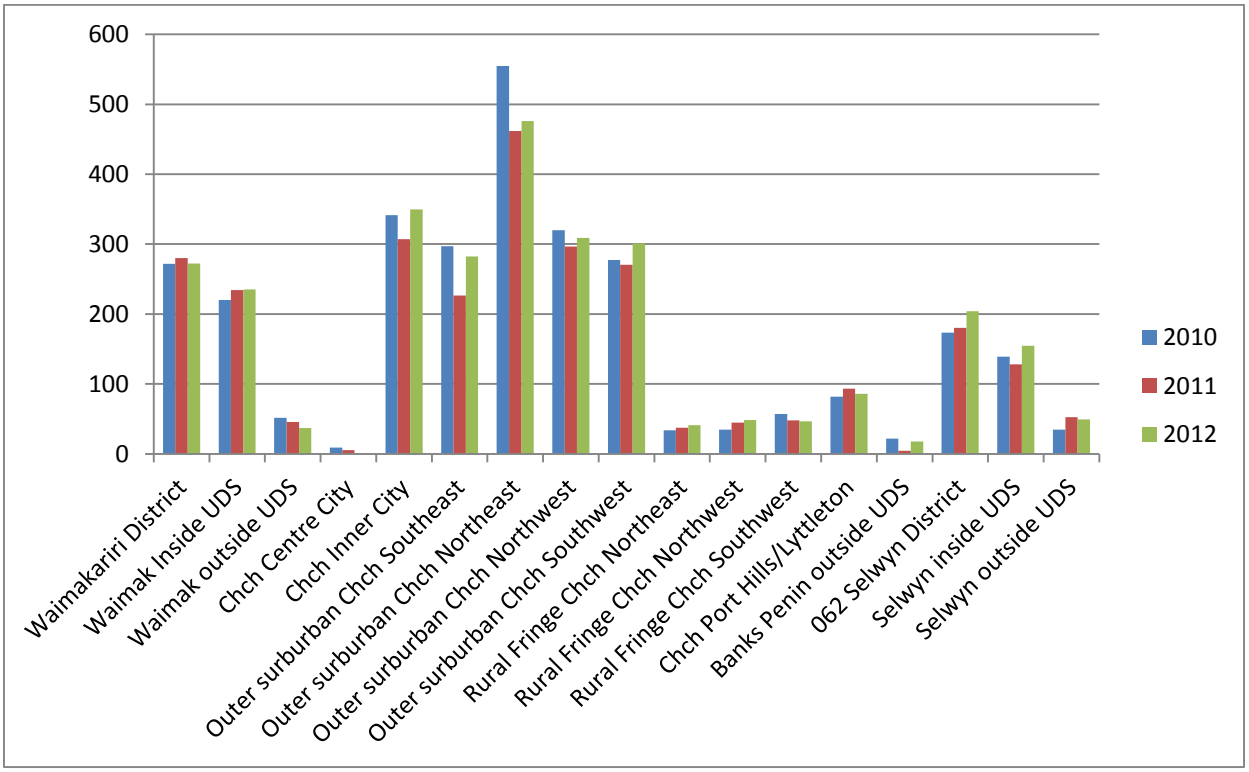
Source: Newell, 2012

Figure 8:2010 to 2012 Māori enrolments, Years 6-10, (2010-12)



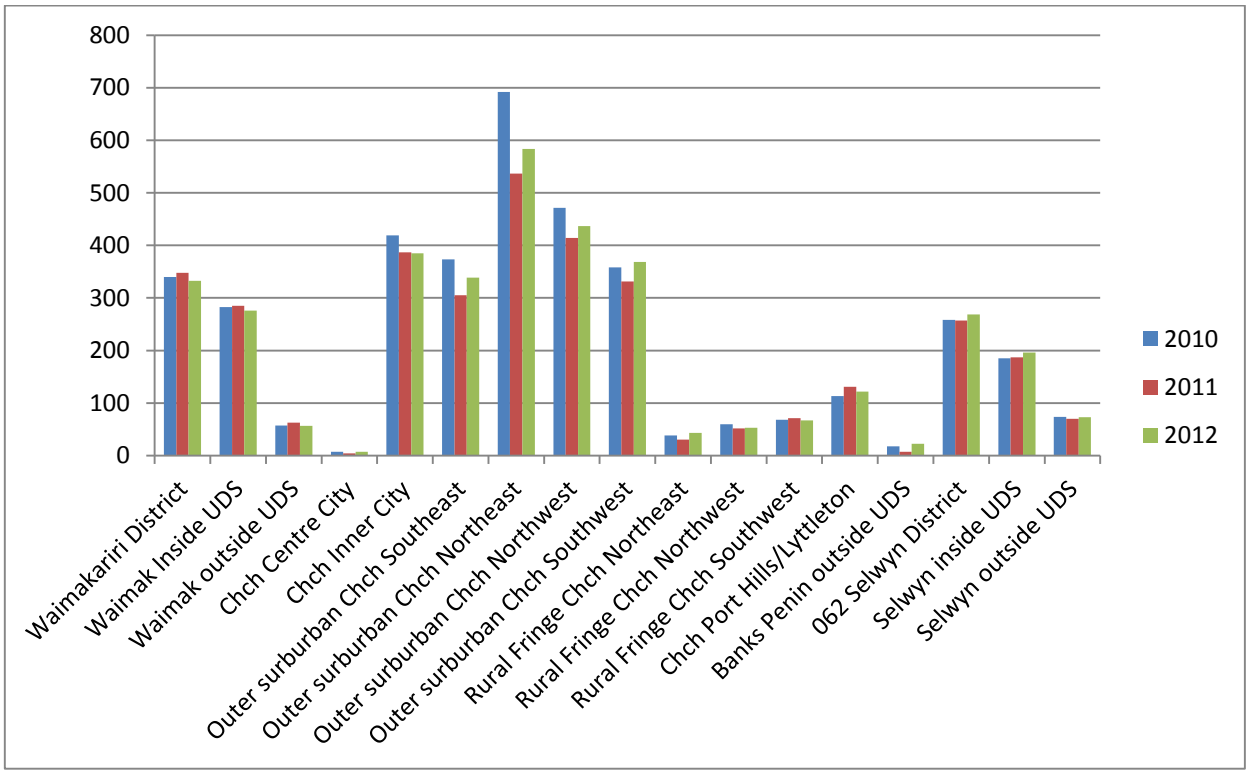
Source: Newell, 2012

Figure 9:2010 to 2012 Māori Yrs 2-5 enrolments and location



Source: Newell, 2012

Figure 10:2010 to 2012 Māori Yrs 6-10 enrolments and location



Source: Newell, 2012

10.3 Beneficiary Movements

Beneficiary records provide a useful insight into those groups of society that might be considered particularly vulnerable in a disaster. The following figures depict Work and Income New Zealand (WINZ) transfers in and out of Canterbury. As expected, there was a net loss of beneficiaries (both Māori and non-Māori) immediately following the February earthquake. However, the post post-quake exodus has not been followed by a significant return of beneficiaries to the region.

Figure 11: Total beneficiary transfers in and out of Canterbury (July 2009-February 2012)

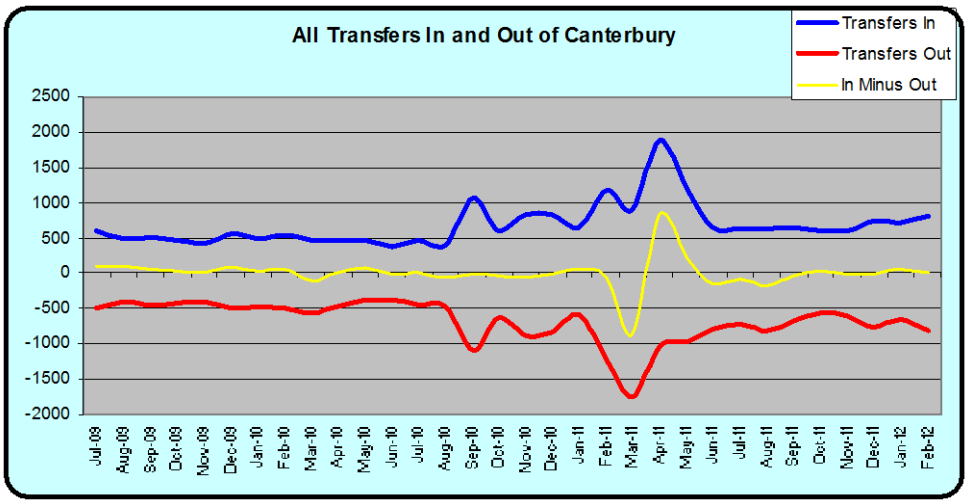
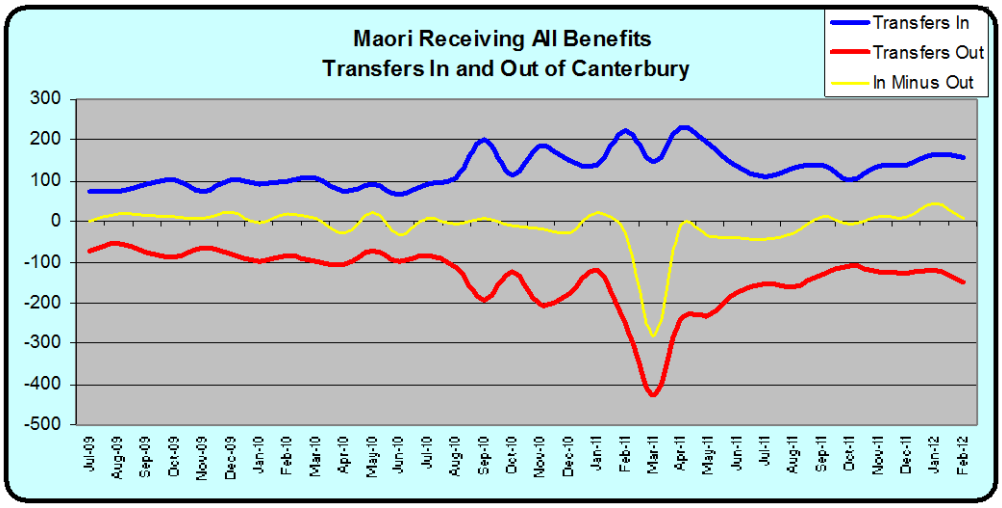
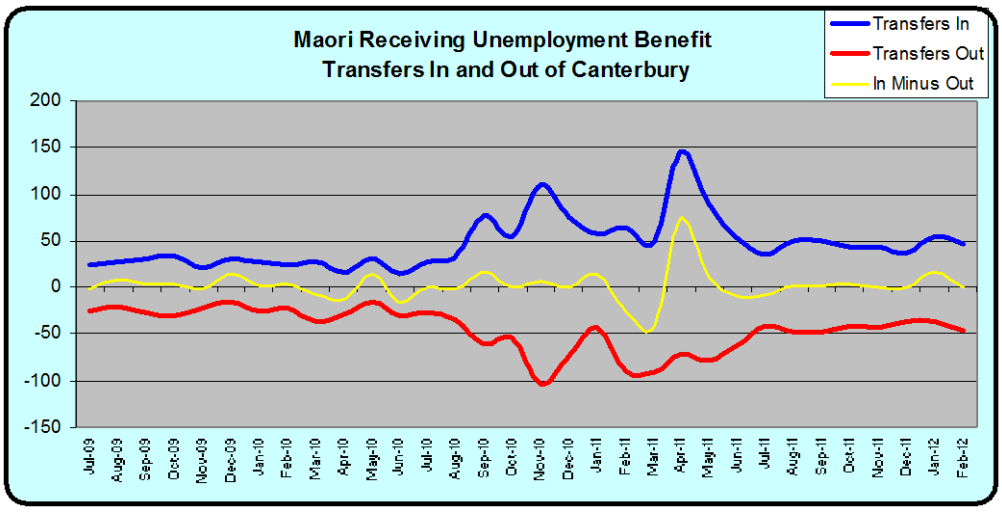


Figure 12: Māori transfers for all benefits (July 2009 - February 2012)



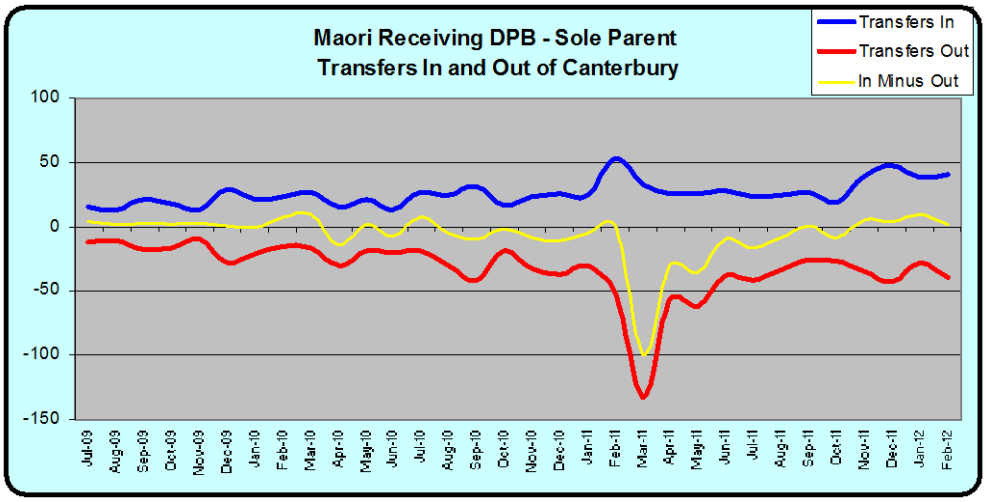
As noted above, Māori unemployment was high before the earthquakes. While the immediate effect was for some Māori receiving the unemployment benefit to transfer out of Canterbury, this was quickly reversed, possibly by unemployed Māori moving to Canterbury to find work in the 'rebuild/recovery' work (which is actually primarily specialised demolition work on many dozens of large buildings).

Figure 13: Māori unemployment beneficiaries (July 2009 - February 2012)



Overall, Domestic Purposes Beneficiaries/Sole Parent figures show a large transfer out with many not returning, at least up until February 2012. A similar pattern exists for Māori on the Sickness or Invalid's Benefit. The destination of these beneficiaries can only be broadly indicated at this stage, with over all figures presented in a following section (Figure 16).

Figure 14: Māori Domestic Purposes Benefit transfers (July 2009 - February 2012)



10.4 External Migration

Aftershocks, with some of considerable magnitude, caused serious distress and disruption to residents and have contributed to ongoing outward migration although it is difficult to isolate the earthquakes as the sole cause of this movement as continued economic concerns in New Zealand have encouraged an increasing number people to consider emigration. It is difficult to determine the number of Māori emigrating in response to the earthquake due to the absence of ethnicity data gathered at New Zealand's border. Newell (2012) offers some guidelines to estimating the 'flight' component of the external migration impact of the earthquakes. For the

purposes of this report it was decided to focus only on Australia, with updated data published June, 2012.[12]

Table 7: Selected departures to Australia and estimates of Māori emigration

Location	Year ending March 2010	Year ending March 2012	Estimated Māori departures
Christchurch	1,892	4,230	323
Selwyn District	167	305	18
Waimakariri District	241	480	32
Ashburton District	106	215	13
Canterbury	2,687	5,787	416

Source: Overall figures from Turner & Young (2012)

These figures reflect the popularity of Australia as a destination for New Zealanders in general, with the history and linkages for Māori - especially the Gold Coast of Queensland are extensive and growing. It is known that a significant population of Māori reside in Australia (Hamer, 2007, 2009), enabling chain migration by which whānau members follow previous migrants, drawing on established connections for accommodation, employment, and other forms of support including cultural. Several participants knew of relations, friends, and workmates who emigrated to Australia after or because of the quakes. Interviews were undertaken with several Māori who had emigrated to Brisbane and its environs as a result of the earthquakes.

10.5 The decision to leave

For some whānau, flight was an immediate response:

> *When did you decide to leave Christchurch?*
>
> *Oh pretty much straight away, so we met out at Tai Tapu because ___ lives out there. So we booked and I suppose you know how he was talking about mobility and being able to leave. We were pretty lucky although our van was on empty …*

Time and again people expressed a fundamental focus on the safety of their tamariki and this has framed the decisions for some whānau to leave; young couples with children made up 66% of those leaving (Newell 2012).

> *Everything is for our kids.* (Parents who left for North Island)
>
> *When you've got children, you're talking about something different. The safety of our children came first.* (Parents who left for Australia)

It is also evident that the loss of employment has driven many residents away in a search for work. This mobility has previously identified (Statistics New Zealand, 2007), Māori being the

[12] Although data for departures exists for other destinations, and although New Zealanders including Māori are widely travelled, the numbers are small, leading to the assumption that they are comprised of nationals returning to their home countries as opposed to any large-scale movement of Cantabrians to, say, Melanesia, Ireland, or the USSR.

most likely (60.3%) to have been living elsewhere in New Zealand five years earlier. Some who have left have found new and exciting opportunities.

> *We'll chuck[ed] all the kids in the van and we'll drive and we'll figure out where we're going to go to when we get there ... and when we got here cause we found out that ____ got links to the marae and they've actually got whānau land … all of this really really good stuff's happened to us since we've been here and we might never have known about that [if] it wasn't for the earthquake so although it was a really bad thing to happen it also presented us with a lot of opportunity.*

10.6 The decision to stay

Loyalty to the city was rarely mentioned in interviews despite being a common theme in the media (although it was expressed very passionately by one mother of two grown children). Many had calls from whānau to return 'home':

> *My dad's idea was to ring up and yell at me, and go 'go home!' … But the reality is we didn't want to go back, we didn't want to live on the marae. Because when we come back, it's still gonna be here. Nothing's going to change.*

The main reasons for staying in the city were whānau, employment in Christchurch, and home ownership.

> *Because this is home, this is where the kids are, this is where work is, this is where life is.*

> *No I never thought about shifting. Oh there has been the odd moment where I thought living in Nelson would be really nice but that's just a fleeting, fleeting, thought. When it came down to it, I wouldn't do it because my whānau's all here.*

> *So is that your reason to stay in Christchurch? Because your whānau's here?*
>
> *Yeah, probably the main reason. Although I would probably shift now whereas I would never [have] even contemplated moving away but I would look at moving away if I thought it was right*
>
> *Do you mean out of Christchurch?*
>
> *Yeah. Even out of New Zealand believe it or not.*

10.7 What are the levels of displacement and relocation of Māori within the Canterbury region?

Considerable displacement took place in the days following the February event although initial estimates of up to 70,000 leaving Christchurch were perhaps exaggerated, and certainly many residents soon returned once reassured of their safety. Some returned to secure their properties and possessions as reports circulated of looting and theft from homes. Initial movements out of the Eastern suburbs were considerably less than other areas (see Table 5).

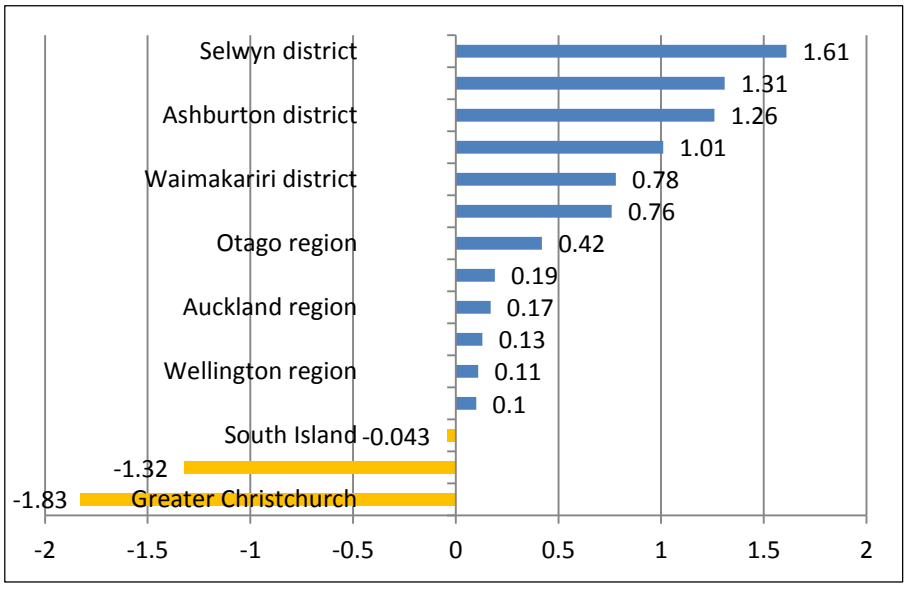
10.8 Displacement and relocation of Māori to other regions?

Interviews reveal many stories of Māori moving 'back home', by which was meant the North Island. This can be inferred from the school enrolment data already presented, although accurately locating whānau is not possible

> *All my whānau who lived here shot back to the North Island, we're a poor whānau, solo mums … [my sister] with 8 kids, they jumped on a plane and went to Tokoroa. They're still there.'*

Figure 15 shows many Christchurch residents moved to neighbouring districts Selwyn (to the south) and Hurunui and Waimakariri (to the north). It is not known how many of these were Māori, leading to a reliance on school enrolments which remains the most robust statistical data.

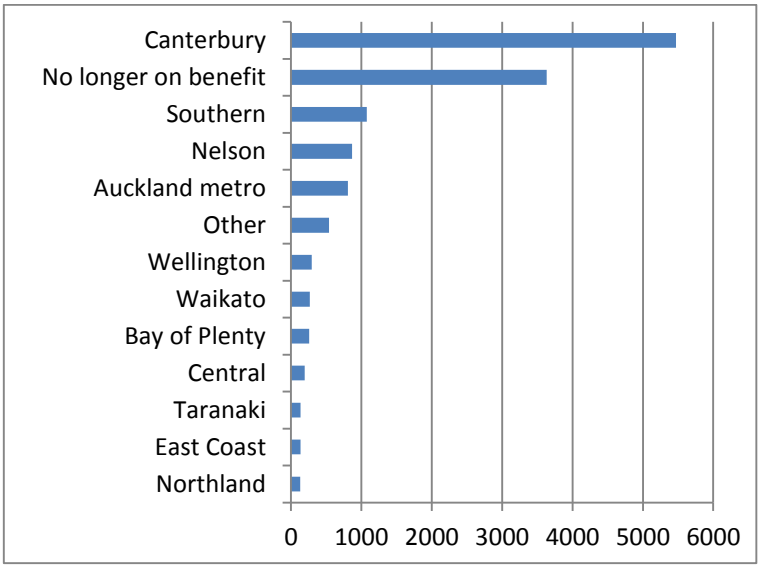
Figure 15: Estimated % change in total overall internal migration rates for 2010/2011



Source: Newell, 2012

These movements are broadly echoed by WINZ data that shows the destination of transferring beneficiaries (Figure 16).

Figure 16: Destinations for overall transferring beneficiaries

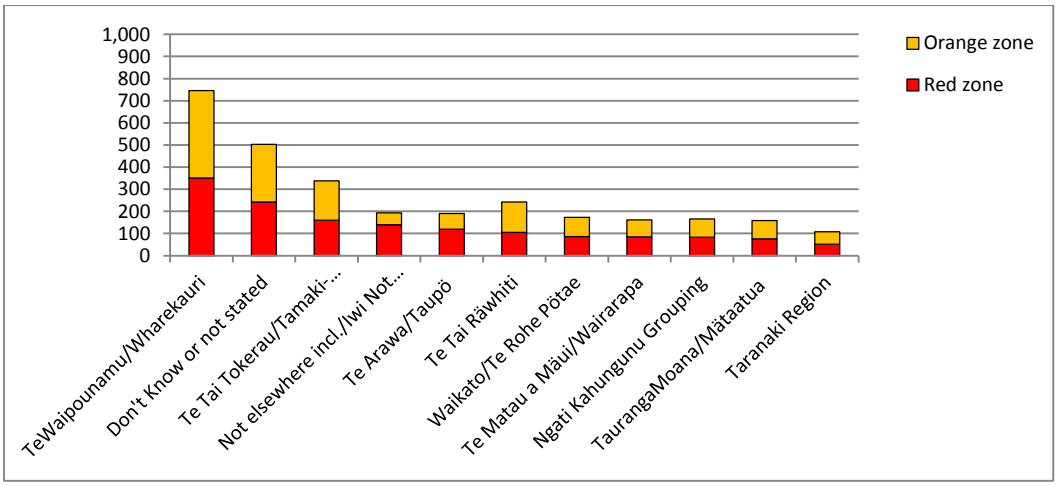


Source: WINZ, 2012

Referring back to the impacts of the earthquakes on neighbourhoods with significant Māori population (Figure 4), it is difficult to calculate the number of Māori affected by EQC zoning decisions due to the lack of robust data. Resorting to a basic merging of 2006 census data on iwi in the city and EQC zoning maps gives an estimate of the impacts on those iwi represented in Christchurch. Figure 17 considers just red and orange zoned properties although again it needs to be stressed that these data are inferred from the 2006 census and EQC zoning decisions of late 2011/early 2012 and can only be broad approximations. Note that the second largest category is Māori who 'don't know' or don't state their iwi affiliations.

The first red zone decisions identifying land to be removed from residential use were made in June 2011. Most of the actual population movement out of these areas will not occur until the second half of 2012 and 2013

Figure 17: Iwi and EQC Zoning. Estimated number and location of Māori by main iwi in EQ red/orange zoned households[13]



Source: Newell, 2012

[13] Based on third quarter 2011 EQ zoning of land use blocks summed to mesh block level and Māori population estimates from the 2006 mesh block database (by ward and local authority). As people can identify with more than one iwi, these data are very general.

As with social and economic contexts, the decisions by Māori to move away from Christchurch are various, intertwined, and subject to change. Younger Māori – as with many other younger New Zealanders – are drawn to global cities for many of the same reasons as their parents were drawn to Auckland, Wellington and Christchurch from post-WW2 rural New Zealand, the locations of greater opportunity and excitement.

> *I never thought about leaving but if I was younger, I would've left New Zealand by now. Not because of the quake, it's just because [of] better opportunities overseas but now at my age I'm quite happy, quite satisfied with what I've done with my life over here. Now I just go on holidays.*

For some of the worst affected, fundamental decisions have been made:

> *No. I will never go back to Aranui. I'm just so scared of the unknown*

10.9 Summary of Movements

While initial movements out of Christchurch city appear to be greater for those areas with smaller Māori populations, significant numbers of Māori left the city in the months after the February, 2011 event; as with non-Māori, the numbers leaving were disproportionately young whānau and sole parents.

Many of those Māori most impacted by events clustered together with whānau in less damaged housing in other parts of the city, including Selwyn and Waimakariri districts, with an unknown but probably significant number moving to the North Island. It is estimated that at least 560 and possibly over 1,000 Māori left the city in the medium term.

Over 300 Māori from Christchurch are estimated to have emigrated to Australia where many already have whānau, friends, and professional contacts that have enabled them to shift relatively easier into a society most Māori are familiar and relatively comfortable with. For many in this group, the earthquakes probably represent the final straw in a decision many had contemplated prior to the disaster.

School roll data indicate that while numbers of Māori whānau in the Eastern suburbs have declined, the rebound in Māori children enrolled in most schools shows whānau are either returning to the city and/or that new whānau have moved in. Māori beneficiary movements show an initial exodus was not matched by a rapid return as with non-Māori beneficiaries, although Māori receiving the unemployment benefit moved into the city, presumably looking for work in the construction sector. Overall, the city's Māori population might be expected to rebound numerically, especially once the somewhat delayed rebuild gets underway, although neighbourhoods traditionally interpreted as being home to important Māori communities may be suffering such a decline in numbers and community wealth as to be more vulnerable to future economic and social shocks.

11. Assistance: Māori support systems / response

The devastating February event saw an international response with rescue workers arriving from several countries (Australia, China, Japan, Singapore, Taiwan, United Kingdom and the United States) to help in the first few days (Lambert, Mark-Shadbolt, Ataria, & Black, in press), especially Australian Urban Search and Rescue 'first responders'.

> *They got welcomed in [to their accommodation]. They had a poroporoaki for them when they left, every one of them was given a pounamu. They were here for three to four weeks, 300 hundred of them. Those relationships are still good.*

Alongside professional emergency workers were many volunteers, some of whom were fundamental to the survival and endurance of many residents, notably the 'Farmy Army' and the 'Student Army' who worked long hours in bringing supplies and digging away the oppressive silt (Hartnell, 2012). Although there were reports of extortionate for food and water, many small businesses such as dairies gave away supplies to passers-by and acts of great charity were far more common than attempts to profit.

Some iwi organisations (e.g., Te Arawa and Tainui) sent medical and trades people to help, not restricting their assistance to their own tribal members and – in the case of medical help – working through relevant health authorities. While these and other efforts could have been better coordinated[14], the arrival of a Te Arawa nurse, Tainui builder, or a Māori warden was universally greeted with smiles and often tears of relief (Te Puni Kokiri, 2011).

11.1 Emergency assistance

In many respects, the response phase is the most simple. Those in immediate danger needed rescuing; and those who found themselves without power, food or water supplies needed emergency relief. Around the city, the rest of the country, and in Kiwi expat communities worldwide, people needed information. Important support was provided by New Zealand corporations such as Telecom (who provided free phone booth access) and Air NZ who flew some people out of the city at no cost and many others for a nominal charge ($50) although anecdotally even this was beyond some Māori, especially those with several children.

> *Telecom had free calling anywhere in New Zealand and you could also ring cell phones, they were free for about two months or as long as the state of emergency was in place. I would go down to the phone box regularly to ring my girls down south and my daughter in Wellington. Lots of people used the phone box, at times there was a queue.*

These needs are not easily, or credibly, delineated along ethnic or cultural lines and our participants did not express any specific 'Māori' approach in the first few hours other than a focus on family which was replicated across other cultural groups.

[14] The author was contacted in the first week after the February event by a text from a tribal coordinator which passed on a wrong number for those tribal members needing help.

11.2 Collective coping responses

It is important to appreciate the scale and severity of the disaster. But for many participants, challenges were met with a degree of pride. Barbeques became a constant feature of many households and neighbourhoods Māori cultural practices were seen by many interviewees as contributing to a degree of resilience to the disaster.

> *Māori are used to the last minute evacuation when it comes to tangi, book a ticket, pack a bag, ring your boss, you can be gone anywhere up to a week.*

Government assistance was vital for many, with emotional contacts through formal and informal networks.

> *But [we] went down to Wellington and we went into WINZ to see about getting the emergency assistance grant. [U]p until that point … I just didn't think we were that badly affected, we were pretty lucky that we didn't know anyone that had died and all that sort of thing. [My husband's] cousin worked at WINZ in ___ so we went well we'll go in and see her … I don't really know her, I've met her once I think, and when I saw her I just burst into tears and for the rest of that afternoon I just couldn't stop crying … I think I just realised that our lives are never going to be the same ever ever again.*

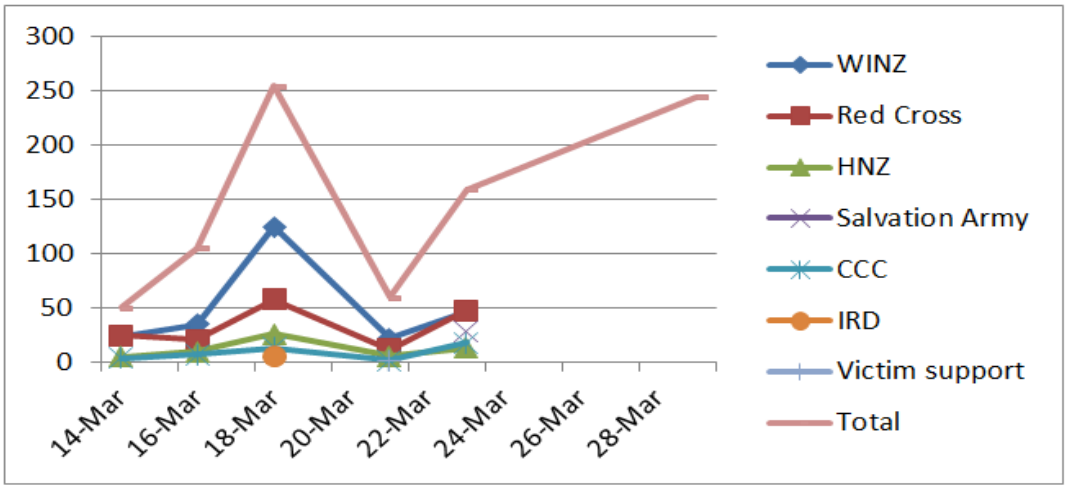
Marae have featured in past disaster responses, providing ready-made spaces for dislocated individuals and families (Mutu, 2000; Webber, 2008).

> *I said to them 'oh you know the only thing we will probably need is a couple of mattresses', because we probably won't all fit, there won't be enough beds for us … we've still got the mattresses now and they're like 'oh you fellas keep those' and they had mattresses and blankets and sheets, towels, toys for the kids and books and kai, so that was cool.*

'Marae style' was noted by participants across several projects (Lambert et al., in press), with people going to stay with other whānau or hosting whānau. Te Rūnanga o Ngāi Tahu (TRoNT) provided supplies such as fuel, gas, food, blankets, and toiletries to local marae (Anderson, 2012) and coordinated Canterbury marae as well as providing a free-phone number for help (0800 KAI TAHU). The large marae of Ngā Hau E Whā, located in Ōtautahi's eastern suburbs, was quickly established as a Recovery Assistance Centre (RAC) and fielded many enquiries (

Figure 18). The marae became a major distribution point where Māori Wardens, Ngā Maata Waka, and other volunteer groups as well as WINZ, Red Cross, Housing NZ, Christchurch City Council, IRD, and Victim Support.

Figure 18: Queries to Ngā Hau e Whā RAC (March 14-28, 2012)



Source: Te Puni Kokiri (2011)

After the initial stages of recovery, Ngā Hau e Whā became the district court, a role it seems likely to fulfil in the short-to-medium term of the recovery period with a planned expansion to incorporate a new youth justice facility.

Rehua Marae operated as an accommodation centre and housed relocated Te Puni Kōkiri staff. The medical team from Te Arawa were also accommodated at Rehua Marae. Managing travel, accommodation and safety was a significant undertaking (Anderson, 2012). The marae became the public Māori face of the Ōtautahi recovery with live media broadcasts transmitting stories of Māori experiences. All marae that were in a position to take whānau in the Canterbury region were opened and were supported with essential resources.

> *We got a lot of help from the iwi, Tūhoe, through Rehua marae. They were catching up with whānau, ringing up, 'Are you guys alright? We've got money here.'*

Rāpaki (Lyttleton Harbour) housed up to 60 people from the local community and was included as an accommodation centre for the area; Takahanga (Kaikoura) experienced an influx of whānau in transit to the North Island, many from Aranui, and many of these had little or no money, sometimes no ID and little clothing. Te Aitarakihi Marae (Timaru) was also very busy. Marae support staff helped complete Red Cross and Work and Income forms on arrival to access emergency cash and marae in the Nelson-Tasman district opened their doors to Christchurch residents (Anderson, 2012).

Red Cross was the most used aid agency (Lambert, 2012b) although it appears many have not sought any aid despite being eligible. Considerable tensions have arisen due to zoning decisions and the operations of the Earthquake Commission (EQC):

> *I think that's been one of the most frustrating things even now all these people with their red zones and their yellow zones who have been stickered, who are going to get a payout?! … All of their grief … there's fighting going on with EQC and insurance companies to be paid but a lot of it is red tape bullshit that's getting in the way with people getting on with their lives and that's bloody that's been disappointing. In the end a lot of its coming down to money and whose going…*

Kura operated as important community nodes, an extension of their pre-disaster role but a role made more important by the collapse of many support systems. The insight that staff had of whānau circumstances was vital to ascertaining whānau needs.

> *The school was great, kept us informed of the situation there. Whaea R__ … she was ringing around everybody … to let us know what was going on because there [was] conflicting stuff in the news…*
>
> *There were four of us who sat just at school for one day, and if we couldn't ring them, we'd go and visit them. The people we were a bit more concerned about, we'd ring not just that once, we rang a few times to see if they needed anything else.*

The whānau framework for schooling some children (Māori and non-Māori) has enabled a network of trust that was clearly reassuring for parents.

> *Whaea A__ had taken [our boy] to her house, which is kind of half way … so that was a cool thing, that's a good help.*

The most fundamental network drawn on by many Māori remains the whānau.

> *[And it was] a real hard afternoon and luckily we got down to Wellington and his mum, as soon as we walked in, she saw the look on our faces and said 'you guys look tired. Leave those kids in here, leave your washing out in the hallway, and go and have a sleep.' And I thought man that's exactly what we needed … I didn't actually go to sleep but I lay on the bed and thought 'oh this feels a bit better!'*

Many stories were told of people turning down help, even though it was much needed. This seemed to be particularly evident with elderly people

They turn down help because they think that there are people in more need than them. And that was across the board, not only Māori…old school New Zealand, 'somebody worse off than me, so go and help them.'

11.3 What assistance will whānau require in the future?

Feelings of safety and security have yet to return for many Māori with many still conscious of the risks. People continue to plan their response, a sense of risk exacerbated by ongoing aftershocks (over 30 of which were stronger than magnitude 5.0).

In my mind…I want a truck. I'd like to know that I can get into my truck and I'm just gone. Through water, over another car!

Considerable research has been done on psychological effects of disasters, with Australian research teams producing pertinent projects focusing on children and adolescents from a significant number of case studies on disaster interventions (McDermott, 2004). For our participants, whānau was seen as the first and perhaps last stop for some in seeking counselling.

…if you want counselling, talking about Māori, it's got to be within the whānau, within the community itself, but at the end of the day if the kids want counselling, they've got to respect you, you're talking kids here… but kids need counselling these days anyway, and there isn't any, even without the earthquakes.

I mean if they want counselling they'll go and see Nana. So that's who they see, so you know within our family, it's always been there. Go see Nana or Aunty or whoever. They won't talk to somebody they don't know.

As with other disasters, the Canterbury 'seismic event' has both destroyed wealth and ended many business ventures. It has, however, also opened up opportunities for many skilled individuals and groups. One couple were working towards establishing a kura, their thinking and planning moulded by the disaster.

From early childhood right through to tertiary level on one site, so we're all on one site. Part of it is because we all want to be together, and that goes into extended whānau now … So while yes there is the education arm in there, and yes for real, at the same time having whānau able to go to one area to collect our children and know our whānau is a part … The earthquake had highlighted that, this is the benefit of a pa, it's a one stop shop.

11.4 Summary of Assistance

The outpouring of volunteer help alongside national professional responses epitomises the Kiwi culture of helping those in need. The international response was also important, and aspects of Māori culture were utilised during their stay and may have formed useful links for future training and support. Emergency needs were generally satisfied by this response. Notwithstanding the poor distribution of port-a-loos in the Eastern suburbs, supplies of food, water, cash, clothing, toiletries, and other goods were made available. Information, security and transport and other services were also needed by those residents affected by the disaster, a challenging component of the emergency response that has caused some controversy as this first phase passes into the recovery period.

For Māori, the primary locus of assistance originated with, and focused on the whānau (and this extends over the whole country and Australia) but with the neighbourhood an important spatial arena due to the scale of the disaster which forced many people to stay at close to home. Many Māori found the display of community connectedness a manifestation of whānaungatanga and manaakitanga, taking great pride in their individual and whānau roles, and the role of Māori cultural factors in helping to cope with the disaster.

Māori institutions and organisations contributed to supporting Māori and non-Māori through the first weeks of the disaster. Kura were important centres of coordination, working with their own staff and databases to insure whānau (and especially children) were safe and secure.

Many residents, including Māori, have expressed dissatisfaction with aspects of the recovery period including local and national leadership, city planning and its processes, environmental concerns, and insurance issues including the operations of EQC. This wider issue highlight the need for more formalised engagement of iwi, and particularly local iwi (Ngai Tahu in the case of the Canterbury earthquakes) in the recovery period of any disaster.

12. Cultural approaches to catastrophe

'Being Māori' was seen as fundamental to how Māori responded to and coped with the disaster.

> *[Our] organisational skills, knowing your community, knowing who to contact, that's it in a nutshell: knowing your community, the right people to approach and yeah, being Māori does help a big way because of what's in here, it's not what's up here, it's what's in here and you can go and cuddle anybody you know, it doesn't. Well, Māori cuddle Māori anyway … as soon as you've done that it sort of breaks down those barriers, and I think the Police have actually seen another side of that part of being Māori.*

> *It's just sort of part of your culture … you don't always have to rely on supermarkets … you know what puha looks like and you can probably go to your brothers or aunties and get something if you needed it.*

The Canterbury earthquakes have revealed the contribution of Māori institutions and organisations as having important, fundamental, roles in disaster response and recovery (Kahi & Borrell, 2011; Lambert et al., in press; Tarena, 2012). This cultural component is often understood and communicated through very traditional methods such as mythology and story-telling:

> *The kids were pretty good though because the week before, they were at Nōku Te Ao, then for that I think three or four weeks they had been learning about Rūaumoko so when it happened we were all freaking out like 'oh my god! I can't believe this is happening!' you know, as you do! The kids are like 'oh that's Rūaumoko in Papatūānuku's puku, he's just having a kanikani…' So they were all good, they went straight into their turtle and knew what to do, so that was cool.*

Manaakitanga and whānaungatanga were constantly named as integral to the Māori response. Several participants considered cultural attitudes to death to have been an important factor in the professionalism of care around victims. The nearby Burnham Military Camp, with its large Māori workforce, was used as a mortuary for victim recovery and identification. One interviewee was somewhat disturbed by the regular ferrying of bodies overhead by helicopter en route to Burnham.

Most participants considered 'being Māori' an important aspect of how and why they managed to cope with the earthquakes. This was often in the form of a perhaps romanticised interpretation of rural backgrounds too many whānau (albeit two or more generations removed). Some whānau members knew they could rely on uncles and cousins to be able to secure food through hunting and fishing although it should be noted that food was not in short supply in the immediate weeks following the February event.

> *Kanohi kitea* [in answer to why some processes worked well through the disaster].

12.1 Cultural Resilience

Given the introduction of the term resilience early in the disaster response period, when it was applied to the strength of character displayed by Christchurch residents, it is perhaps apt that the term 'cultural resilience' is increasingly used to describe the ability of Māori to continue expressing cultural practices considered integral Māori identity . This can be seen as in some way engaging with cultural capital, defined by Saunders and Dalziel (2009: 14) as accruing from the 'strength and quality of networks connecting members' of a group or community (e.g., in extended whānau structures). This includes beliefs and practices passed down through generations and the set of values, norms, traditions and behaviour which individuals and collectives can develop into 'assets or resources to leverage economic, political and social gains'.

Whānau resilience has been the specific focus of researchers with the term itself being questioned and challenged as not resonating with Māori (Boulton, 2012). However, in Christchurch we have found perhaps the inverse of this, i.e., the term is well-known and regularly used but actual resilience is not necessarily evident.

12.2 Summary

This report has integrated a range of data broadly categorised along three groupings (individuals, whānau, and neighbourhoods) and three timelines (short, medium, and long term). The insights and experiences of Māori were gathered from a number of interviews that began three months after the February 2011 event and continued throughout 2012. Subsequent presentation and discussion of data gathered from organisations, including the media, serves to triangulate these experiences and the impact on whānau, neighbourhoods, and Christchurch City, drawing in wider community networks which include whānau across New Zealand and extending to Australia.

Research participants showed considerable individual and whānau resilience through the response to the initial disaster, notably the February 22nd event although several major aftershocks required their own response. Indeed the actions of some individuals were nothing less than heroic. However, the continuing decline of certain neighbourhoods, especially the Eastern suburbs, challenges assumptions of a collective Māori resilience as significant numbers of Māori undoubtedly left Christchurch in the months after February 2011. It can be assumed that, as with non-Māori, the numbers leaving were disproportionately young whānau and sole parents.

The economic impacts on some Māori will have been devastating, with some home owners facing the loss of considerable equity as well as stress from the disruption of moving home or trying to find affordable rental accommodation. Employment opportunities in the city have declined, particularly for woman, and the delayed rebuild limits the opportunity for those who are expecting to find work in the expected construction boom.

School roll data provides robust information on the location and movement of Māori whānau, showing a decline in the Eastern suburbs but a possible rebound in other areas as whānau are either returning to the city and new whānau are moving in. Overall Māori beneficiaries initially moved out of the city, but Māori receiving the unemployment benefit moved in, presumably looking for work in the construction sector. Those neighbourhoods traditionally interpreted as being home to important Māori communities may be suffering a decline in numbers and community wealth as to be more vulnerable to future economic and social shocks.

Communities are an interwoven theme that crosses and combines all scales and timelines with internet (notably Facebook) providing a means to reassure friends and whānau on safety and survival through each major earthquake. Regardless of the ethnicity of householders, red-stickered areas and homes are being abandoned, and people relocating to elsewhere in Christchurch, to the Waimakariri and Selwyn districts (immediately north and south of Christchurch respectively), to elsewhere in the South Island, but often to the North Island to be with whānau, and even Australia (where whānau connections for many Māori are often well established. This means important neighbourhoods for Māori in Christchurch are struggling to provide basic utilities and community functions.

While ongoing disruption to schooling and employment represents a major hindrance to the recovery for all residents, for Māori these difficulties are compounded by a historical

vulnerability through poor employment prospects, low asset wealth, and previous trauma, exacerbated by geographical effects of the disaster as experienced in the Eastern suburbs. Economic security remains the fundamental challenge for Māori as individuals, whānau, communities and neighbourhoods, and the current economic climate is exacerbating any existing vulnerabilities.

The lack of robust statistical data on Māori constrains many analyses of Māori demographic change; available information remains disappointingly sparse and can too often present a confusing picture. Māori who left Christchurch because of the quakes may now be returning after stays of various durations with whānau elsewhere in the country, but this is not clear from statistics. Likewise, Māori from Christchurch who have joined sizeable communities in Australia seek economic security that has long been on offer, with the disaster providing the final impetus to emigrate.

Te Rūnanga o Ngāi Tahu's insight will provide a valuable learning opportunity for other iwi. An important aspect of preparing for a disaster is the securing of tribal records and databases such as whakapapa, with digitising records and ensuring other taonga are safe perhaps a matter of urgency. That the Rūnanga is well-positioned to benefit from the opportunities offered in the rebuild of the city indicates the sort of challenges and opportunities that future shocks (including financial) and natural hazards and their consequent disasters present. For Māori, the long history of settlement and occupation of tribal lands in a geologically active country means the greater accumulation and salience of knowledge into the ever present environmental hazards may allow better resilience to possibly greater risks in the country's future.

Overall, Māori are remarkably philosophical about the effects of the disaster with many proudly relishing their roles in what is a historic event of great significant to the country as a whole. The disaster provides a unique, albeit frightening, learning opportunity for Māori and others to examine their current and future exposure to what are intrinsic risks to settling Aotearoa/New Zealand. With the recovery phase likely to extend over many years, affecting the entire country as Ōtautahi/Christchurch draws in resources and workers, Māori in the city can expect further challenges.

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Appendices

Appendix 1: Online databases and archives

The Press newspaper
http://www.stuff.co.nz/the-press/

Canterbury Earthquake Recovery Authority
http://cera.govt.nz/

Christchurch Earthquake Clearing House
http://www.eqclearinghouse.org/2011-02-22-christchurch/

Christchurch City Council
http://www.ccc.govt.nz/

Environment Canterbury
http://ecan.govt.nz/pages/home.aspx

The University of Canterbury has established a digital archive, including the ongoing contribution of audio-visual recordings by residents of Christchurch, and is preparing for long-term procurement and storage of material related to the disaster.
http://www.ceismic.org.nz/

Appendix 2: Long-term departures and arrivals

Table 8: Estimated earthquake effect on Christchurch long-term arrivals and departures by gender and origin/destination country grouping (Sept. 2010-Jan. 2012). Source Newell (2012).

Origin / Destination	Decrease in Arrivals		Increase in Departures		Reduced Net Migration		
	Male	Female	Male	Female	Male	Female	All
Not defined or miscoded	70	110	30	0	100	100	180
Australia	170	380	770	1,030	950	1,400	2,350
Melanesia	0	0	-10	0	-10	0	-10
Other South Pacific	30	50	0	20	30	70	100
North Asia	410	560	-70	-50	340	510	840
South and East Asia	150	280	50	100	200	380	570
Central Asia and Indian subcontinent	20	50	0	0	20	50	60
Southern Africa	-20	0	0	-10	-20	-10	-20
Other Africa and Middle East	80	-20	10	-20	90	-30	70
United Kingdom & Ireland	70	70	90	10	160	80	240
Other Europe and USSR	40	60	70	40	110	100	210
North America	20	80	0	0	30	90	110
South and Central America	20	30	0	0	30	40	60
Total	950	1,500	840	990	1,790	2,490	4,280

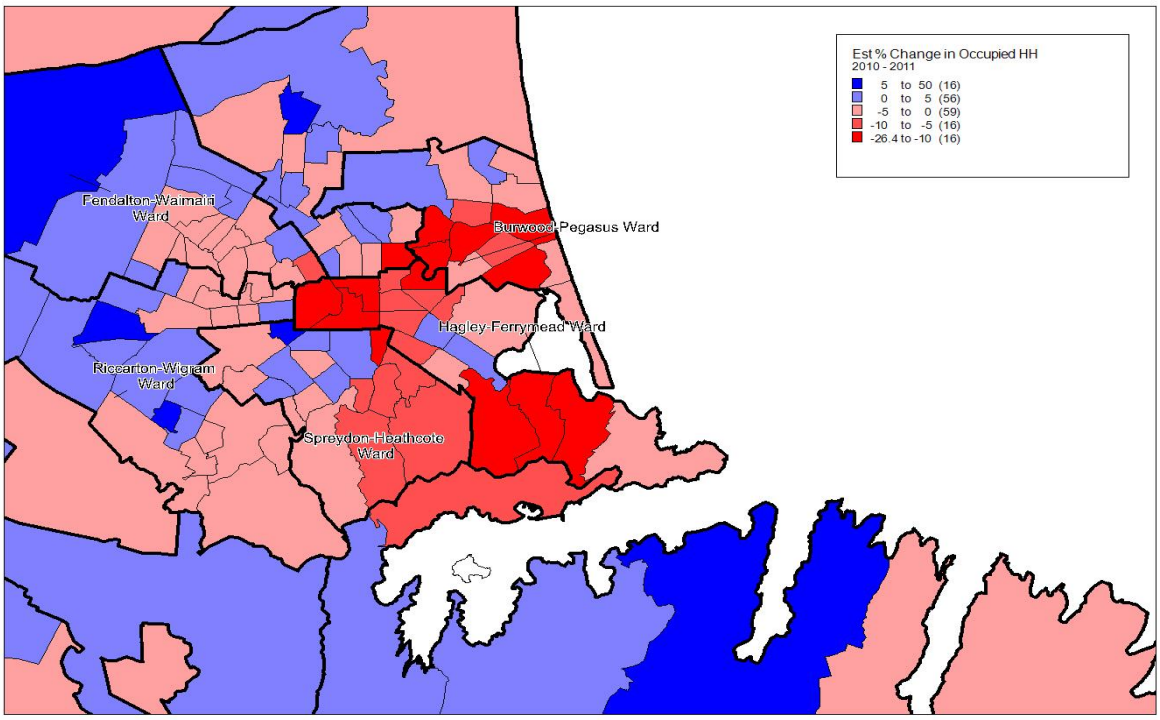
Appendix 2: Per cent change in school enrolments (2010-11)

Table 9: Percentage change between 2010 and 2011 in July school rolls by age group for Greater Christchurch, Canterbury and New Zealand schools (Newell, 2012)

Age Group	5 to 9 yr olds	10-14 yr olds	15-19 yr olds	Total Roll
Christchurch	-8.06	-5.72	-3.34	-5.99
Waimakariri	0.46	1.19	1.54	0.94
Selwyn	2.24	-1.74	1.46	0.59
Greater Christchurch	-6.04	-4.62	-2.52	-4.68
Other Canterbury	2.25	-0.78	-1.47	0.29
Canterbury	-4.53	-3.93	-2.35	-3.81
Otago	-1.39	0.38	0.29	-0.30
Other South Island	0.62	-0.61	1.98	0.44
South Island	-2.58	-2.25	0.74	-2.05
New Zealand	-0.01	-0.63	0.13	-0.22

Appendix 3: Estimated change in occupied households (2010-11)

Figure 19: Estimated 2010-11 change in occupied households in Christchurch



Source: Newell (2012)

Appendix 4: Change in enrolments by age group (2010-11)

Table 10: 2010 to 2011 change in number of overall enrolments as at July by age group for the schools of Greater Christchurch, Canterbury and New Zealand

Age Group	5 to 9 yr olds	10-14 yr olds	15-19 yr olds	Total Roll
Christchurch	-1,756	-1,339	-491	-3,666
Waimakariri	15	38	24	75
Selwyn	62	-44	21	40
Greater Christchurch	-1,679	-1,345	-446	46
Other Canterbury	143	-50	-51	46
Canterbury	-1,536	-1,395	-497	-3,505
Otago	-155	45	21	-91
Other South Island	102	-106	192	191
South Island	-1,589	-1,456	-284	-3,405

Source: Newell (2012)

Table 11: 2010 to 2012 Māori enrolments by estimated age and residential address location

	Years 2 to 5 (ages 6 to 9)			Years 6 to 10 (ages 10 to 14)		
Locality	**2010**	**2011**	**2012**	**2010**	**2011**	**2012**
059 Waimakariri District	**272**	**280**	**272**	**340**	**348**	**332**
02 Waimakariri inside UDS	220	234	235	283	285	276
03 Waimakariri outside UDS	51	45	37	57	63	56
060 Christchurch City	**2,027**	**1,796**	**1,959**	**2,618**	**2,270**	**2,426**
04 Chch Centre City	9	5	1	7	4	7
05 Chch Inner City	341	307	350	419	387	385
06 Outer suburban Chch Southeast	297	226	282	374	305	339
07 Outer suburban Chch Northeast	555	462	476	692	537	584
08 Outer suburban Chch Northwest	320	296	309	471	414	437
09 Outer suburban Chch Southwest	277	270	301	358	331	369
10 Rural Fringe Chch Northeast	34	37	41	38	30	43
11 Rural Fringe Chch Northwest	35	45	49	60	52	53
12 Rural Fringe Chch Southwest	57	48	47	68	71	67
13 Chch Port Hills/Lyttleton	82	93	86	113	131	122
14 Banks Penn outside UDS	22	5	18	18	7	23
062 Selwyn District	**173**	**180**	**204**	**258**	**257**	**269**
15 Selwyn inside UDS	139	128	155	185	187	196
16 Selwyn outside UDS	35	52	49	74	70	73
Grand Total	**2,472**	**2,256**	**2,435**	**3,216**	**2,874**	**3,027**

Note that cells with less than 4 counts are suppressed.

Appendix 5: Te Runanga o Ngāi Tahu

Excerpt from Te Rūnanga o Ngāi Tahu's Annual Report (Te Runanga o Ngai Tahu, 2012, pp. 40-41) and discusses the economic and market impacts of the earthquakes on TRoNT investments and assets.

"Following completion of property remediation repair programmes and settlement of insurance proceeds from insurers, it is anticipated that there will be a recovery of investment property fair values. Therefore, the valuations for these assets necessarily require significant estimation based on a series of detailed assumptions and reflect the risk around the numerous resulting unknowns. If any of these assumptions were to change or prove to be inaccurate the impact on the valuation may be significant. The approach by the valuers, and the Group, has been to value the buildings at a fully repaired market value that reflects the post-earthquake market environment, less the estimated costs to remediate the investment property. This assessment has been made irrespective of whether insurance proceeds will cover the cost of repairs, as this is a separate economic event; however it is the expectation of the Group that the insurance cover up to and including the date of damage will be adequate to cover estimated damage. Upon the renewal of the Group's insurance policy cover on 30 June 2011, covering the physical asset and the property rental streams, this has been obtained but it provides only 60% cover for Combined Business Interruption and Material Damage insurance for all natural disasters in the Christchurch region from 30 June 2011. This gap is being sought from the London market however uncertainty exists as to whether this will be obtainable. Remediation repair work has commenced prior to balance date and is on-going, and insurance proceeds are being received following acceptance by the insurer of claims submitted. Insurance proceeds received are being taken to the Statement of Comprehensive Income as claims are agreed by the insurer.

Critical general assumptions

The critical general assumptions included in the Group's investment property valuations are as follows:

- The improvements and land forming the properties are structurally sound and not detrimentally affected by the earthquakes;
- It is expected that insurances will meet any capital remediation expenditure repair requirements and/or loss of rental income;
- There is likely to be no tenant failure. In addition, any risk of a shifting tenant is incorporated in the capitalisation rate to determining fair value;
- There is further assumption that the properties will continue to generate rentals in the foreseeable future and any change to the city plan will not adversely affect rental streams.

Specific assumptions and impact

The impact of the earthquakes while significant has been assessed by qualified quantity surveyors (Rider, Levett, Bucknall) as repairable and as a consequence the valuer has been able to base their valuation on a relatively predictable set of assumptions.

Insurance and Remediation Costs

Insurance proceeds have been received or accrued to date of $2,954,000 under the Group's Material Damage policy for earthquake building remediation claims following the 4 September 2010 and 22 February 2011 earthquakes. This amount comprises insurance proceeds received of $1,763,000 and insurance proceeds receivable of $1,191,000, following claim submission at balance date. Earthquake building remediation costs are claimed under the Group's Material Damage insurance policy. Insurance proceeds have been received or accrued to date of $1,329,171 for loss of rents suffered as a result of the 4 September 2010 and 22 February 2011 earthquakes. At balance date there was an insurance receivable for earthquake loss of rents of $651,154, following insurance claim submission. The Group's insurance policy provides cover for the loss of rents situation resulting from natural disaster events such as earthquakes. There is insurance cover for a period of 24 months for loss of rents cover (gross rentals).

Earthquake building remediation costs of $2,953,000 have been incurred at balance date, comprising building remediation costs paid $2,173,000 and building remediation costs accrued $780,000 for work completed but not yet invoiced. The earthquake building remediation costs amount includes an insurance excess payable amount of $63,612 and this excess is payable by the Group pursuant to the Group insurance policies. It has been estimated that a further amount of $9,315,000 for earthquake building remediation repair costs are still to be completed for full reinstatement of the investment property.

Tenant Insured Buildings

The investment property Christchurch Courts has in place a crown lease tenancy with the Ministry of Justice and this lease provides that the tenant has the responsibility for insuring the building for any damage incurred, including damage caused by natural disasters such as earthquakes. The tenant has its own insurance in place through the Crown for the earthquake building remediation costs and these costs are estimated at $11,000,000. The tenant has accepted the building remediation costs and work has commenced on the building earthquake remediation programme."